

**Smoking or not smoking: How well does the theory of planned behaviour
predict intention and behaviour?**

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the degree Philosophiae Doctor (Ph.D.)

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SUMMARY

Tobacco smoking constitutes the largest cause of impaired health and premature death in Norway. Notwithstanding this fact, 26 percent of the Norwegian population smoke daily, 11 percent smoke occasionally and still large numbers of adolescents are recruited to the smoking population each year. Thus, there is evidently a need to develop more effective strategies to increase the quit rate among smokers and to ensure that those who do not smoke refrain from smoking. Several authors have emphasised that to further improve our understanding of smoking uptake and cessation, studies need to be theory-driven. This thesis demonstrates how theoretical perspectives from various social psychological frameworks may contribute to explaining smoking cessation and initiation.

Paper I concerned parents' intentions not to smoke indoors in the presence of their children. *Paper II* addressed students' intentions to quit smoking (Time 1) and the subsequent making of the quitting attempt six months later (Time 2). *Paper III* concerned adolescents' intentions to reduce smoking (Time 1) and the subsequent behaviour one year later (Time 2), and *Paper IV* addressed adolescents' intentions to refrain from smoking (Time 1) and self-reported smoking behaviour one year later (Time 2). The impact of the school-based smoking prevention programme BE smokeFREE was also examined.

Common to the papers was that the Theory of Planned Behaviour (TPB) was used as a theoretical framework. According to the TPB, the more positive a person's attitude, the stronger the subjective norms and the greater the perceived control over the behaviour (PBC), the stronger the intention to perform the behaviour and correspondingly, the more likely the person is to perform the behaviour. The TPB has been successfully applied in predicting a wide range of behaviours, including smoking. Nevertheless, several authors have argued that the model has some important limitations, e.g., (i) the TPB does not capture affective processes, (ii) it does not account for all sources of social influence, and (iii) the specified predictors are not always sufficient in terms of behavioural prediction. Accordingly, research has shown that moral norms, self-identity, group identity, descriptive norms/group norms, anticipated affective reactions, past behaviour, and action planning are useful additions to the TPB. However, these variables have seldom been applied in the domain of smoking. Thus, one aim of this thesis was to obtain a better understanding of factors that are important with respect to smoking initiation and cessation. A second aim was to empirically illuminate the TPB by including additional variables in the model. Hence, in addition to the TPB components, self-identity was assessed in all papers, along with moral norms. Moreover, the impact of past behaviour (*Paper I, II & III*), descriptive norms/group norms (*Paper III & IV*), positive and negative anticipated affective reactions (*Paper I & II*), group identity (*Paper II*), action planning (*Paper III*), smoking by valued others (*Paper IV*), and alcohol use (*Paper IV*) was examined. Several interaction effects were also tested.

The thesis is based on empirical data from three different studies. Data were collected by questionnaires in three target groups in Norway: Parents of children born in 1998 (mean age = 33 years, *Paper I*), university students aged 26 years at Time 1 (*Paper II*), adolescents aged 14 years at Time 1 (*Paper III & Paper IV*). The samples contained data from 145-722 participants. Two of the surveys were longitudinal, with 6 and 12 months between the measurement points.

The results from *Paper I* revealed that subjective norms and PBC accounted for 56% (adjusted R^2) of the variance in parents' intentions not to smoke indoors in the presence of their children, while attitude failed to predict intention. Self-identity, moral norms, and the interactions between parent identity and self-identity as a smoker, and between negative anticipated affect and moral norms accounted for 19% (adj. R^2) of the variance in intentions, after the effect of the TPB components had been accounted for. *Paper II* showed that the combination of attitudes, subjective norms and PBC accounted for 36% (adj. R^2) of the

variance in students' intentions to quit smoking. Moral norms, positive anticipated affect, group identity and past behaviour explained 9% (adj. R^2) of the variance in quitting intentions, beyond the effect of the TPB components. In *Paper III* attitude, subjective norms and PBC accounted for 28% (adj. R^2) of the variance in adolescents' intentions to reduce smoking. Moral norms, self-identity as a smoker and the group identification by group norm interaction accounted for 10% (adj. R^2), after the TPB component had been controlled for. Finally, in *Paper IV* subjective norms and PBC accounted for 13% (adj. R^2) of the variance in adolescents' intentions to refrain from smoking, while attitude failed to predict intention. Moral norms, self-identity as a non-smoker, descriptive norms, group identification, and perceived social pressure to smoke explained 13% (adj. R^2) of the variance in intentions, beyond the effect accounted for by the TPB components.

Paper II showed that intentions to quit smoking predicted the subsequent making of the quitting attempt six months later (adj. $R^2 = .12$), while PBC failed to predict behaviour. Past behaviour, self-identity as a smoker, moral norms, and the interactions between past behaviour and intention, and between negative anticipated affect and moral norms accounted for 9% (adj. R^2) of the variance in behaviour, over and above the impact of the TPB components. In *Paper III* the TPB components did not have a direct impact on smoking reduction one year later, while the PBC by intention interaction was significant (adj. $R^2 = .01$). Past smoking behaviour, self-identity as a smoker, and action planning explained 23% (adj. R^2) of the variance in behaviour, beyond the effect accounted for by the TPB components. *Paper IV* showed that PBC was a significant predictor of smoking initiation one year later, while the impact of intention was marginally significant ($R^2 = .05$). Past smoking behaviour, smoking by family members, perceived social pressure to smoke and alcohol use predicted smoking initiation one year later, accounting for 19% above the impact of the TPB components. Finally, we were not able to conclude that BE smokeFREE had an independent impact on smoking initiation in this group of adolescents.

In sum, the TPB provided good predictions of intentions (adj. $R^2 = .13-.56$). Nevertheless, the inclusion of the extension variables improved the prediction of intentions substantially (R^2 increase = $.09-.19$). The TPB was less successful in predicting behaviour (adj. $R^2 = .01-.12$). However, several of the extension variables contributed in bridging the intention-behaviour gap (R^2 increase = $.09-.23$). The results from these studies have several theoretical implications. In addition to the cognitive processes captured by attitudes in the TPB, smoking decisions were also influenced by positive and negative anticipated emotions. Moreover, subjective norms as operationalized in the TPB were not able to capture all sources of social influence in relation to smoking cessation and smoking initiation. Overt and covert, distal and proximal normative factors were important motivational sources as well as decisive for subsequent behaviour. Smoking can also provide a means of self-portrayal, i.e., social action is transformed into self-identity. When a smoker perceived smoking as being an important part of his/her self, s/he was more resistant to change his/her behaviour. Thus, motivation and perceived control over the behaviour is not always sufficient to explain why people smoke or not. Consistent with this reasoning, action planning appeared as a promising supplement to intentions and PBC in relation to smoking reduction. Nonetheless, the great intention-behaviour gap in this context clearly illustrates the need for further research concerning self-regulative processes. Finally, the results point to factors that are important in order to prevent smoking, and thus some practical implications for future smoking interventions are suggested.

LIST OF PAPERS

- Paper I** Moan, I. S., Rise, J., & Andersen, M. (2005). Predicting parents' intentions not to smoke indoors in the presence of their children using an extended version of the theory of planned behaviour. *Psychology and Health, 20* (3), 353-371.
- Paper II** Moan, I. S., & Rise, J. (2005). Quitting smoking: Applying an extended version of the theory of planned behavior to predict intention and behavior. *Journal of Applied Biobehavioral Research, 10* (1), 39-68.
- Paper III** Moan, I. S., & Rise, J. (2005a). Predicting smoking reduction among adolescents using an extended version of the theory of planned behaviour. *Psychology and Health* [Conditionally accepted].
- Paper IV** Moan, I. S., & Rise, J. (2005b). Predicting smoking initiation among young adolescents using social influence factors and an extended theory of planned behaviour. *Addiction* [Submitted].

1. INTRODUCTION

1.1 BACKGROUND

Decades of medical and epidemiological research have provided evidence of the harmful effects of smoking (US Department of Health and Human Services [USDHHS], 1994). In Norway, cigarette smoking is the largest preventable cause of impaired public health and premature death. Tobacco alone causes 30 per cent of all cancer deaths and 17 per cent of all deaths (Norges Offentlige Utredninger [NOU], 1997). Around 7500 people die from smoking-related diseases in Norway annually and, in addition, around 500 lives are lost due to passive smoking (NOU, 2000:16; Sanner & Dybing, 1996).

In this thesis, smoking initiation and smoking cessation (including smoking reduction) will be investigated by applying concepts from separate, but inter-related social psychological perspectives. The rationale for this was twofold: First, relatively few empirical studies have applied these perspectives in relation to smoking. Second, several authors have emphasised that to further improve our understanding of smoking uptake and cessation, studies need to be theory-driven. In this thesis the Theory of Planned Behaviour (TPB; Ajzen, 1991) was chosen as a theoretical framework. Although the TPB has been applied successfully across a wide range of health behaviours, including smoking, few studies have applied the model to study smoking initiation among non-smokers. Moreover, few studies have used the TPB in relation to smoking cessation. In addition, several studies have shown that the model might benefit from being extended with a number of additional variables. However, these variables have seldom been applied in this context. Thus, one aim of this thesis was to obtain a better understanding of factors that are important with respect to smoking initiation and cessation. A second aim was to empirically illuminate the TPB by including additional variables in the model, both in predicting intention and subsequent behaviour. Thus, the study both has practical and theoretical implications.

The predictive utility of an extended TPB was examined in relation to parents' intentions not to smoke indoors in the presence of their children (Paper I), students' intentions to quit smoking and the subsequent behaviour 6 months later (Paper II), adolescents' intentions to reduce smoking and the subsequent behaviour one year later (Paper III), and adolescents' intentions to refrain from smoking and the subsequent behaviour one year later (Paper IV).

1.2 A SOCIAL PSYCHOLOGICAL APPROACH

Identifying predictors and factors that might influence smoking represents a large field of research, including biological approaches which show that individuals might become physiological dependent on smoking (e.g., DiFranza et al., 2003). Early efforts addressing smoking prevention were mainly based on and motivated by health-related and demographic research. During the 1970's, several negative findings of such preventive measures highlighted the need for theoretically founded research. From being considered mainly as a health-related behaviour, smoking was later perceived as a social behaviour (cf. USDHHS, 1994). According to recent findings, environmental factors appear as particularly predictive of smoking. In one study of monozygote and same-sex dizygote twins, for example, the findings suggested that smoking is influenced primarily by environmental factors rather than genetic factors (White, Hopper, Wearing & Hill, 2003; see Han, McGue & Iacono, 1999, for similar results). Consequently, an important task for researchers in this field is to understand the mechanisms operating in the interplay between the individual and his/her social surroundings.

In the social sciences, research on smoking can be said to be represented at three levels (cf. Tesser, 1995): (i) *the collective level*, (ii) *the interpersonal level*, and (iii) *the intrapersonal*

level. The collective level includes epidemiological mapping of patterns of use and identification of the demographic risk factors that contribute to a disposition towards smoking. Moreover, theories and models focusing on group dynamics, social identity, and social representations can be placed within this level. The interpersonal level (culture and norms) involves the mapping of reinforcing factors in the individual's immediate social surroundings. For instance, parental and sibling smoking may be placed on this level along with several other concepts focusing on the relation between the individual and the larger social context in which s/he operates. Finally, the intrapersonal level, seeks an understanding of why individuals make the choices they do under given structural framework conditions. At this level investigations focus on cognition, i.e., cognitive processes triggered by, or focusing on social stimuli. Herein lies theories focusing on attitudes, which is one of the most widely applied concepts in social psychological research. Other central concepts on the intrapersonal level, which have been identified as important predictors of smoking cessation and initiation, are self-efficacy/perceived behavioural control, intentions, and subjective norms.

This thesis address issues at all three levels. However, the point of departure which is common to the four papers is the theory of planned behaviour, a framework which is located at the intrapersonal level.

1.3 TARGET GROUPS

This thesis includes four samples. Two of the samples contain adolescents (non-smokers and smokers). The third sample consists of students (daily smokers) and the fourth sample includes parents of small children (smokers). Below, the rationale behind each study will be outlined. In each section we will conclude by specifying which of the papers that address the respective issues. This will be highlighted in bold.

1.3.1 Adolescents and smoking

Most smokers over the age of 30 who smoke regularly started smoking before the age of 18 (Lund & Lindbak, 2004). While smokers born in the period 1926-1935 reported taking up smoking at the age of 20 (average age for men) and 27 (average age for women), smokers born in the period 1956-1973 reported starting smoking when they were 17 (Lund & Lindbak, 2004). This trend is alarming since smoking at a young age is strongly predictive of lasting consumption of smoking tobacco (Chassin, Presson, Rose, Sherman, 1996). For example, Pierce and Gilpin (1996) estimated that half of those who start smoking during adolescence continue to smoke for 16-20 years. Since the peak year of 1975 (Lund, 1998) the overall smoking prevalence in Norway has fallen sharply. However, a decrease among adolescents has been lacking the last 10 to 15 years (Braverman, Svendsen, Lund & Aarø, 2001). These findings are consistent with the results from other countries. For instance, reports stemming from the United Kingdom, the United States, and The Netherlands all show that while the smoking prevalence among adults have decreased, the smoking prevalence among adolescents have remained relatively stable the last 10-20 years (e.g., Engels, Knibbe & Drop, 1999; Goddard & Higgins, 1999; Hine, Summers, Tilleczeck & Lewko, 1997). Compared to adults, adolescents at the same level of self-reported intake were more likely to be diagnosed as dependent, which suggest that adolescents may be especially vulnerable to dependence or sensitive to the effect of nicotine (Baker, Brandon & Chassin, 2004). Moreover, the health risk increases with an early debut age (USDHHS, 1994). For example, compared to adolescents who are non-smokers, young smokers have more respiratory infections, more coughs, more stress on their hearts, are less fit, and have a higher risk of strokes. In addition, the younger they are when they start smoking the younger they are in developing heart disease (The Royal College of Physicians, 1992). Young smokers also have a greater risk of lung cancer (Doll &

Peto, 1981). A large survey conducted among Norwegian adolescents in the year 2000 showed that among 15 year olds 43% of the girls and 34% of and boys reported smoking daily or occasionally (Lund & Rise, 2002), while among 13 year olds 15% of both genders were smokers.

Two main strategies may be used to develop preventive efforts against adolescent smoking: (i) to identify the determinants of smoking initiation, and (ii) identifying determinants of smoking cessation, which includes smoking reduction.

1.3.1.1. Smoking initiation among adolescents

Research addressing *smoking initiation* among adolescent has identified distal factors (at the interpersonal level), e.g., parental, sibling and peer smoking (Baker et al., 2004; Conrad, Flay & Hill, 1992; Tyas & Pederson, 1998), gender and lower socioeconomic status (Conrad et al., 1992) to be decisive for the onset of smoking. Although research show that smoking by valued others is one of the most consistent predictors of smoking initiation among adolescents, the nature of the processes underlying this influence is still unclear (cf. Kobus, 2003). Thus, Kobus (2003) stated that more research is needed to understand the overt and covert pressures adolescents are exposed to in relation to smoking. A social psychological approach may provide some answers to these understudied issues. Psychologists have focused on more proximal determinants (i.e., the intrapersonal level) of smoking initiation and have identified self-efficacy, attitudes, subjective norms, and intentions (Conrad et al., 1992; Tyas & Pederson, 1998) as some of the most important predictors of future smoking behaviour. However, not enough research has examined these predictors within a consistent theoretical framework in prospective studies.

Conrad et al. (1992) conducted a meta-analysis of 27 prospective studies of the onset of children's smoking and emphasized the need for further studies to be theory-driven. Based on a similar review six years later, Tyas and Pederson's (1998) conclusions were the same, i.e., research addressing smoking initiation among adolescents "...should include multivariate and bivariate models...should be theory-driven and consider a range of factors, such as social, personal..." (p. 409). Relatively few studies seem to have predicted smoking among adolescents in longitudinal studies using a coherent theoretical framework, e.g., the TPB, among non-smokers only (see Conner, Sandberg, McMillan & Higgins, in press). Furthermore, results from studies addressing smoking initiation show that intentions are one of the most consistent predictors of subsequent behaviours (e.g., Conrad et al., 1992; Tyas & Pederson, 1998). Intentions are the culmination of the decision process; they signal the end of deliberation about a behaviour and capture the standard of performance that one has set oneself, one's commitment to the performance, and the amount of time and effort that will be expended during action (e.g., Ajzen, 1991). In spite the centrality of the concept, few studies have identified the predictors of intentions among adolescents who are non-smokers in this area (see for exceptions Conner et al., in press). By identifying the factors underlying the intention formation process in relation to smoking initiation, one might provide useful information for future behavioural change interventions (cf. Hardeman et al., 2002). Finally, relatively few studies have addressed this issue in a Norwegian setting (Friestad & Klepp, 1997; Tell, Klepp, Vellar & McAlister, 1984; Øygard, Klepp, Tell & Vellar, 1995).

Motivated by these understudied issues, we chose to examine the impact of an integrated model of distal and proximal determinants on adolescents' intentions to refrain from smoking and self-reported behaviour one year later (cf. Paper IV).

1.3.1.2 Smoking cessation among adolescents

In relation to *smoking cessation* among adolescents, recent reviews show that research in this area is sparse (cf. Mermelstein, 2003; Sussman, 2002; Backinger et al., 2003). Sussman (2002) was able to identify 17 prospective studies addressing self-initiated smoking cessation among adolescents conducted in the period 1975 to 2001. Self-initiated smoking cessation refers to smokers who quit on their own, without involvement in a formal quit-effort. The studies included in the review of Sussman (2002) applied a wide range of predictors, and the variables that most consistently predicted smoking cessation were lower pre-test smoking (5 studies), fewer friends who smoke (4 studies), lower intention to smoke in the future (3 studies), and parent and siblings who do not smoke (2 studies). However, few studies have explored the reasons underlying quitting intentions (see Falomir & Invernizzi, 1999, for an exception) among adolescents, and the translation of intentions into actual quitting, i.e., the phase of self-regulation, using a more coherent theoretical approach. Moreover, there are a number of empirical indications in favour of studying *reduction* as opposed to cessation of smoking among adolescents.

First, longitudinal studies have shown that few adolescents quit on their own (Engels, Knibbe, de Vries & Drop, 1998; Paavola, Vartiainen & Puska, 2001). Engels et al. (1998) found in a large longitudinal sample of adolescents who were surveyed three years apart that only 12% had quit over the 3-year period, 19% were seriously considering quitting while 32% reported that they had not thought about quitting. In terms of the TPB, these data indicate that there is great gap between intentions to quit smoking and actual quitting among adolescents. There may be a number of reasons for this gap. For example, recent evidence (DiFranza et al., 2003) indicates that young people may become nicotine dependent even before they become daily smokers. Moreover, one study adopting a qualitative focus group approach indicated that adolescents' were not able to formulate concrete plans and they did not know how to quit (cf. Balch, 1998). This finding suggests that measures of intentions to quit smoking may be quite unstable in this group of smokers, and that they lack self-regulatory strength, or that they do not know what self-regulatory strategies to use or how to use them (cf. Orbell, 2004). Second, some studies show that adolescents want to smoke for some years and then quit (see Baker et al., 2004), suggesting that quitting smoking may be an unrealistic goal at this age. Thus, young smokers may be better able to articulate concrete plans about whether or not to reduce their smoking than about actual quitting, and it may be an easier goal to implement than actual quitting. Finally, some studies have shown that smoking reduction predicts future smoking cessation (e.g., Hughes, 2000; Falba, Jofre-Bonet, Busch, Duchovny & Sindelar, 2003).

Thus, based on these findings we chose to examine the impact of a coherent model of proximal psychological determinants on adolescents' intentions to reduce smoking and self-reported smoking one year later (cf. Paper III).

1.3.1.3 Smoking interventions among Norwegian adolescents

Over the past three decades the school has been a particular focus of efforts to influence adolescents smoking behaviour (Thomas, 2002). Five types of interventions have typically been used, and the majority of studies report that interventions are based on the social influence model (see Thomas, 2002, for review).

In Norway BE smokeFREE (BSF) represents the largest preventive effort against adolescent smoking. BSF is mainly based on social learning theory, and is a typical representative of the social influence model (see Jøsendal & Aarø, 2002 for details). The basic premise of the social influence model is that adolescents who use substances do so because of social pressures from peers, family, and media, as well as internal pressures (e.g., the desire to be cool and popular). Along with an information component on health and social

consequences, these programs seek to teach methods to counter those pressures, and, more importantly, attempt to motivate students to resist them (Ellickson, 1995). Although the social influence model has proven to be the most effective in smoking prevention efforts (see Lantz et al., 2000; Paglia & Room, 1999), recent evidence suggest that school-based interventions based on the social influence model might not be as effective as earlier assumed (e.g., Peterson, Kealy, Mann, Marek & Sarason, 2000; Thomas, 2002; Wiehe, Garrison, Christakis, Ebel & Rivara, 2005).

BSF is based on a research project which the Norwegian Cancer Society (NCS) and the Research Centre for Health Promotion carried out in 200 school classes in lower secondary schools (i.e., among adolescents aged 13-15 years) during the period 1994-1997. The project achieved good results (see Jøsendal & Aarø, 1998, for details). On the basis of the positive results, the NCS, the National Council on Tobacco and Health, and the National Association for Public Health entered into a collaboration that resulted in the national implementation of BSF in 1997. Since BSF was introduced nationally, the prevalence of participants (8th grade) registered per year increased from 42% to 62% in 2000, and a total of 110 000 individuals have participated in the programme (Lund, Lühr & Jøsendal, 2002). Lund et al. (2002) investigated the effect of BSF after it was implemented nationally and found that 11 per cent more remained smoke free in the BSF group compared to the control group. Moreover, Lund et al. (2002) performed a multiple logistic regression analysis to test the relative impact of BSF (data from 2000); parents, siblings and friends smoking; and gender on smoking status (9th and 10th grade combined). The results showed that those individuals who participated in BSF, boys, and those who did not have parents, siblings and friends who smoked were more likely to be smoke free. However, a weakness of the study of Lund et al. (2002) is that they used cross-sectional data when predicting smoking behaviour. Jøsendal and Aarø (2002) found an effect of BSF on both frequency of smoking and number of cigarettes smoked per week in a prospective sample of adolescents (baseline in 1994 and follow-up surveys in 1995, 1996 and 1997). Nevertheless, the effect of BSF has not yet been tested in a prospective sample since it was implemented nationally in 1997.

We had the opportunity to examine whether BSF had an impact on smoking initiation in a prospective sample of adolescents who were non-smokers at Time 1 (cf. Paper IV).

1.3.2 Smoking cessation among adults

Data from Statistics Norway shows that 26% of 16-74 year olds reported smoking daily in 2004, while approximately 11% reported smoking occasionally. Thus, in addition to focusing on adolescents in preventing work, these results indicate that it is equally important to try to make older individuals quit smoking. The need for cessation programmes among adults is further highlighted by the results from a longitudinal study conducted among 34 439 male British doctors from 1951 to 2001 which shows that by quitting smoking it is possible to gain up to 10 years of life expectancy (Doll, Peto, Boreham & Sutherland, 2004). Specifically, the study showed that cessation at age 60, 50, 40, and 30 years gained, respectively, about 3, 6, 9, and 10 years of life expectancy. Hence, if smokers quit by the age of thirty the risk of mortality caused by smoking can almost be reduced to zero (Doll et al., 2004). Thus, in light of these results one will obtain more healthy individuals and save more lives if smoking cessation efforts are aimed at young adults, i.e. those younger than 40. Figures from Statistics Norway (2004) show that 23% of young adults aged 16-24 years reported smoking daily while 16% reported smoking occasionally. Moreover, 25% of those aged between 25-34 years reported smoking daily while 14% reported smoking occasionally. Among those aged 35-44 years 30% reported smoking daily, while 12% smoked occasionally.

Most previous research addressing smoking cessation using a social psychological approach has been conducted among older individuals, i.e., among smokers aged 40 and older

(see Borland, Owen, Hill & Schofield, 1991; Johnston, Johnston, Pollard, Kinmonth & Mant, 2004; Norman, Conner & Bell, 1999, for reviews). We were able to identify four studies which have studied quitting intentions using the TPB (Falomir & Invernizzi, 1999; Hu & Lanese, 1998; Norman et al., 1999; Willemsen, de Vries, van Breukelen, & Oldenburg, 1996). Attitudes (Falomir & Invernizzi, 1999; Hu & Lanese, 1998; Willemsen et al., 1996), subjective norms (Hu & Lanese, 1998; Willemsen et al., 1996), perceived behavioural control (Hu & Lanese, 1998; Norman et al., 1999; Willemsen et al., 1996), previous quit attempts (Falomir & Invernizzi, 1999; Hu & Lanese, 1998; Willemsen et al., 1996) and self-identity as a smoker (cf. Falomir & Invernizzi, 1999) appeared as significant predictors of intentions to quit smoking. Two studies have previously tested the ability of the TPB to predict the subsequent making of an attempt to quit smoking (Johnston et al., 2004; Norman et al., 1999). Intentions and previous quit attempts (Norman et al., 1999), and perceived behavioural control (Johnston et al., 2004) appeared as significant predictors of subsequent smoking cessation. However, only a restricted set of variables have been applied to predict smoking cessation among adults, and few studies have been conducted among younger individuals. Based on previous research addressing health related behaviours, several variables might improve the prediction of behavioural intentions (cf. Conner & Armitage, 1998; O'Keefe, 2002). Moreover, several studies show that the intention-behaviour gap in this area is particularly large (e.g., McMillan & Conner, 2003), suggesting that there a need to address processes that can contribute in bridging this gap.

Motivated by the above factors, we examined the impact of a range of proximal psychosocial predictors on students' intentions to quit smoking and the subsequent making of the quit attempt six months later (cf. Paper II).

1.3.3 Parents of small children

Apart from the positive effect quitting smoking has on adult's own health, smoking cessation might also improve the health of others (cf. Sanner & Dybing, 1996) as well as reduce the likelihood of adolescents taking up smoking (e.g., Baker et al., 2004; Friestad & Klepp, 1997).

Exposure to environmental tobacco smoke (ETS) is now recognised as an important public health problem (see Gehrman & Hovell, 2003). A number of epidemiological studies have demonstrated associations between exposure to ETS and various human illnesses in both children and adults; for example, children who are exposed to ETS develop diseases like asthma, pneumonia, and bronchitis more often than non-exposed children (Environmental Protection Agency, 1992; World Health Organization, 1999; see Li et al., 2003, for review). In addition, children who grow up with tobacco smoking role models (e.g., parents) are also more likely to start smoking themselves (e.g., Baker et al., 2004). Thus, children are both directly and indirectly affected by their parents' smoking behaviour. For young children and adolescents the problem of ETS is primarily related to parental smoking at home. Surveys in Norway, performed in 1995 and in 2001, indicate that there has been a decline in the percentage of households in which small children were exposed to ETS from 32% in 1995 to 18% in 2001 (Lund, Helgason & Andersen, 2004). In light of the consequences ETS exposure has for children, these numbers are still too large.

Previous research addressing smoking behaviour among parents with small children has mainly been concerned with describing the proportion of parents who expose their children to ETS, in terms of a restricted set of independent variables (see Lund, Skrondal, Vertio & Helgason, 1998a; Lund, Skrondal, Vertio & Helgason, 1998b; Helgason & Lund, 2001). The most common variables assessed in these studies seem to be health-risk awareness and attitudes regarding the potential hazards of passive smoking (e.g., Helgason & Lund, 2001; Rise & Lund, 2005). Thus, more research, preferably with a coherent theoretical framework, is

needed to provide an account of the motivational processes underlying the decision of parents to avoid exposing their children to tobacco smoke.

Accordingly, we examined the impact of a coherent model of socio-cognitive determinants on parents' intentions not to expose their children to ETS (cf. Paper I).

2. THEORETICAL PERSPECTIVES

2.1 ATTITUDE-BEHAVIOUR MODELS

Since Wicker's (1969) review of research on the attitude-behaviour relationship, and his conclusion that attitudes probably do not predict behaviour, the aim of social psychologists has been to improve the predictive power of attitudes. In recent years, researchers have mainly been developing integrated models, including additional predictors of behaviour such as social norms or intentions (Olson & Zanna, 1993). Typically, such models focus on the motivational factors underlying individuals' decisions to perform (or not perform) health behaviours, and hence these models have been referred to as *motivational* models (cf. Armitage & Conner, 2000). The most well known motivational models include the Health Belief Model (HBM; Janz & Becker, 1984), Protection Motivation Theory (PMT; Rogers, 1983), Social Cognitive Theory (SCT; 1986), and the Theories of Reasoned Action (TRA; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), and Planned Behaviour (TPB; Ajzen, 1985, 1988; 1991). The TPB is essentially an extension of the TRA.

All models are based on subjective expected utility and expectancy-value theories (e.g., Edwards, 1954; Peak, 1955), i.e., the assumption that individuals seek to maximise their utility. Moreover, most of the models include measures of perceived control (e.g., perceived barriers, self-efficacy) and intention (e.g., protection motivation, health motivation). These variables represent some of the most consistent proximal predictors of smoking initiation and smoking cessation (cf. Conrad et al., 1992; Sussman, 2002; Tyas & Pederson, 1998). However, in terms of behavioural prediction, the TPB provides an improvement on the HBM, PMT and SCT. This finding is based on studies that have directly compared the models, and which have found the TPB to be the superior predictor of intentions and behaviour (e.g., Armitage & Conner, 2000; Conner & Norman, 1994; Quine, Rutter & Arnold, 1998; Weinstein, 1993; but see Dziewaltowski, Noble & Shaw, 1990). In terms of Cohen's (1988) classification of effect sizes¹ meta-analysis show that the variance explained by the TPB in intention and behaviour resembles large effect sizes (cf. Ajzen, 1991; Armitage & Conner, 2001; Godin & Kok, 1996). Similar analysis of the health belief model, protection motivation theory and social cognitive theory reveal that the models typically account for small to medium proportions of the variance in behaviour (see Armitage & Conner, 2000, for details).

Several factors might explain the superiority of the TPB, e.g., it provides better definitions of the specified constructs, combinatory rules are better described, and evidence for discriminant validity of the components have been provided (cf. Armitage & Conner, 2000). The TRA and TPB are based on the principle of correspondence (cf. Fishbein & Ajzen, 1975) or compatibility (cf. Ajzen, 1988), a principle which researchers who use other models (e.g., the HBM) at large seem to be unaware of (cf. Armitage & Conner, 2000; Sutton, 1998). The idea is that in order to maximize predictive power, the predictor (e.g., intention) and the criterion (behaviour) should be measured at the same level of specificity or generality. The measures should be matched with respect to four components: action, target, time, and context. For instance, if the aim is to predict which smokers try to quit smoking in the New Year, it

¹ Small, medium and large effects: r 's = 0.10, 0.30, and 0.50, respectively. These values are equivalent to 1% (small), 9% (medium), and 25% (large) in terms of explained variance (R^2).

might be appropriate to use the following questions: "Do you intend to try to quit smoking in the New Year?" (intention) and "Did you try to quit smoking in the New Year?" (behaviour). This idea has received considerable empirical support (e.g., Ajzen, 1988; van den Putte, 1991).

2.1.1 The theory of planned behaviour

The TRA posits intention as the proximal determinant of behaviour (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). *Behavioural intentions* are assumed to "...capture the motivational factors that influence a behaviour, they are indicators of how hard people are willing to try, of how much effort they are planning to exert, in order to perform the behaviour." (Ajzen, 1991, p. 181). Within this framework, intention is held to be determined by *attitude*, that is, a general positive or negative evaluation of the behaviour, and *subjective norms* which refer to the individual's perception that important others in his or her social environment wish or expect him or her to behave in a certain way.

Moreover, the attitude towards the behaviour is assumed to be determined by two elements: (i) the expected consequences of performing the behaviour, and (ii) the evaluation of the consequences. The indirect measure of attitude can be described as;

$$A \propto \sum_{i=1}^n b_i e_i,$$

where b_i is the perceived probability that the behaviour will lead to the consequence i , e_i represents the individuals evaluation of the consequence i , and n is the total number of behavioural beliefs. These two elements are multiplied for every consequence and the sum of the products determines the indirect attitude measure (behavioural beliefs). This line of reasoning represents the expectancy-value tradition (see Fishbein, 1963; Peak, 1955).

Likewise, subjective norm is determined by two elements: (i) the individuals perception of how significant others like or dislikes that s/he performs a specific behaviour (normative beliefs), and (ii) to what extent s/he is motivated to comply with these people (motivation to comply). The strength of the normative beliefs (n) is multiplied with the individuals' motivation to comply with the referents (m). Fishbein and Ajzen (1975) described the indirect measure of subjective norm as:

$$SN \propto \sum_{j=1}^n n_j m_j,$$

where n_j is the belief that behavioural performance will be approved of by a specific referent j , m_j reflects the motivation to comply with that referent, and n is the total number of important others. The two elements b and m are multiplied for every referent, and the sum of the products determines the indirect measure of subjective norm (normative beliefs).

Nevertheless, as Ajzen (1988) conceded, "The theory of reasoned action was developed explicitly to deal with purely volitional behaviours" (p. 127); i.e., simple behaviours, where successful performance of the behaviours requires only the formation of an intention. Thus, in order to deal with behaviours that required control over behaviour, e.g., in terms of personal resources or environmental determinants of behaviour, Ajzen (1988) proposed "... a conceptual framework that addressed the problem of incomplete control" (p. 132). The TPB extends the TRA by including measures of *perceived behavioural control* (PBC). Ajzen (1991) defined PBC as the person's own perception of how easy or difficult it is to execute the behaviour. Moreover, PBC is assumed to influence behaviour in two ways: (i) it influences the intention to perform the behaviour, and (ii) it can influence the behaviour directly to the extent that it gives an accurate picture of the actual control. Thus, the easier a behaviour is to perform, the more likely it is that one will intend to perform it.

However, it is when people have incomplete volitional control, like when it comes to reducing or quitting smoking, that the inclusion of perceptions of control may make a valuable

contribution to prediction of behaviour (Ajzen & Madden, 1986). A recent study conducted among adolescents showed that nicotine dependency may occur early in their smoking career (DiFranza et al., 2003). This does not, however, imply that they have lost control over this behaviour, only that it is a difficult behaviour to change in the sense that their perception of control over the behaviour appears incomplete. In this case, intention will be a poor predictor of behavioural performance or goal attainment. Nevertheless, in such instances a high perception of control is expected to result in a stronger intention-behaviour relationship (cf., Ajzen, 1991).

PBC is determined by the underlying control beliefs (c), that represents the individuals perception of how often different facilitating or inhibiting factors appears when s/he performs the behaviour, multiplied with the perception of the strength of each facilitating/inhibiting factor. The indirect measure of PBC can be described as:

$$PBC \propto \sum_{j=1}^n c_j \beta_j,$$

where c_j is the perception of how often different facilitating or inhibiting factors appear, β_j is the perceived strength of the same factors, and n is the total number of facilitating or inhibiting factors. Control beliefs are determined by the sum of the products of c x s .

Thus, according to the TPB the individual in a systematic manner reworks his or her subjective perceptions about what s/he will obtain by performing a specific behaviour, what significant others think that s/he should do and whether s/he is able to perform the behaviour.

2.1.2 The TPB and smoking – a review of previous research

Previous research has demonstrated that the TPB is quite successful in predicting a wide range of health related behaviours. For example, Armitage and Conner (2001) reported in a meta-analysis that the model accounted for 39% and 27% of the variance in intentions and behaviour, respectively. Attitude was the strongest predictor of intention ($R^2 = .24$) across studies, followed by PBC ($R^2 = .18$), and subjective norms ($R^2 = .12$). Moreover, intention was stronger related to behaviour ($R^2 = .22$) than PBC ($R^2 = .13$). Nevertheless, PBC added 2% to the explained variance in behaviour after the effect of intention was accounted for (cf. Armitage & Conner, 2001). In addition, Armitage and Conner (2001) found that the proposed interaction between PBC and intention in predicting behaviour was significant in 9 of 19 (47%) studies.

The TPB has also been used to account for intentions and behaviours in the context of smoking (e.g., Babrow, Black & Tiffany, 1990; Black & Babrow, 1991; Bennett & Clatworthy, 1999; Borland, Owen, Hill & Schofield, 1991; Conner et al., in press; DeVries, Backbier, Kok & Dijkstra, 1995; Falomir & Invernizzi, 1999; ; Godin, Valois, Lepage, & Desharnais, 1992; Hanson, 1997; Hanson, 1999; Higgins & Conner, 2003; Hill, Boudreau & Amyot, 1999; Hill, Boudreau, Amyot, Dery, & Godin, 1997; Hu & Lanese, 1998; Maher & Rickwood, 1997; Johnston et al., 2004; McMillan & Conner, 2003; McMillan, Higgins & Conner, 2005; Norman et al., 1999; Rise, Kovac & Kraft, 2005; Willemsen et al., 1996²). To provide a better overview of previous research applying the TPB to study intentions and behaviours in the context of smoking, the results from the respective studies are presented in Table I and Table II. Such an overview can enable us to easier detect the strengths and weaknesses of the model.

Only studies which contained measures of smoking intentions (as suggested measured by Ajzen & Fishbein, 1980) and which conducted analysis to predict intentions with attitude, subjective norms, and PBC (as suggested measured by Ajzen, 1988, 1991) as independent

² These articles were found by searching on Ajzen's homepage: <http://www-unix.oit.umass.edu/~ajzen/>, PsychLit, <http://scholar.google.com>, the research database Academic Search Elite and on the Internet pages of well-known researchers in the field (e.g., Christopher Armitage, Mark Conner, Brian McMillan, Paschal Sheeran).

variables were included in Table I. De Vries et al. (1995), for example, measured intention in terms of frequency of smoking (e.g., whether they smoked "once a week", "every day" etc.). Consequently this measure was considered to be a measure of past smoking behaviour. This study, along with a number of other studies³, was therefore excluded.

Table I Impact of attitude (ATT), subjective norms (SN) and perceived behavioural control (PBC) on intentions reported by means of beta coefficients (β) and explained variance (R^2). Average β -values are weighed by sample size (N).

Intentions	Samples	N	ATT	β SN	PBC	R^2
<i>Intention to participate in cessation program</i>						
1. Babrow et al., 1990	Smokers	191	.53***	19**	.14*	.49
<i>Intention to refrain from smoking⁴</i>						
2. Conner et al., in press, 1	Non-smokers	347	.14**	.10*	-.50***	.37
3. Conner et al., in press, 2	Non-smokers	674	.48***	.12***	-.17***	.48
4. Godin et al., 1992, 1	Smokers	136	.22**	.17* (s)	.55***	.39
5. Godin et al., 1992, 1	Non-smokers	210	.03ns	-.06ns(s)	.08ns	.02
6. Godin et al., 1992, 2	Smokers	53	.31**	.07ns (s)	.53***	.54
7. Godin et al., 1992, 2	Non-smokers	86	-.04ns	-.07ns (s)	-.02ns	.01
8. Higgins & Conner, 2003, 1	Smokers/non-smokers	162	.19*	.10ns	.42***	.27
9. Higgins & Conner, 2003, 2	Smokers/non-smokers	162	.35**	.09ns	.15*	.21
<i>Intention to smoke</i>						
10. Hanson, 1997, 1	Smokers/non-smokers	141	.44***	.16** (s)	-.48***	NR
11. Hanson, 1997, 2	Smokers/non-smokers	146	.62***	.03 (s)	-.36***	NR
12. Hanson, 1997, 3	Smokers/non-smokers	143	.55***	.07ns (s)	-.43***	NR
13. Hill et al., 1999	Smokers/non-smokers	2114	.32*	.13*	-.51*	.75
14. Maher & Rickwood, 1997	Smokers/non-smokers	285	.24***	.33***	.40***	NR
15. McMillan & Conner, 2003	Smokers/non-smokers	471	-.03ns	.03ns	.37***	.14
16. McMillan et al., 2005	Smokers/non-smokers	741	.36***	.15***	-.31***	.52
<i>Intention to quit</i>						
17. Falomir & Invernizzi, 1999	Smokers	153	-.19*	-.35***	-.02ns	.21
18. Hu & Lanese, 1998	Smokers	531	.12***	.01***	.13***	.26
19. Norman et al., 1999	Smokers	65	.16ns	-.07ns (s)	.69***	.49
20. Willemsen et al., 1996	Smokers	508	.33***	.16***	.09**	.23
	Average β , weighed by N	7319	.29***	.12*	.34***	.34

Note. NR = R^2 was not reported, Hanson (1997) and Maher and Richwood (1997) used structural equation modelling and all other studies applied multiple linear regression, (s) = single item used to assess subjective norm. If several studies were conducted, the number of the study is indicated in each case (e.g., Hanson, 1997, 1).
 *** $p < .001$, ** $p < .01$, * $p < .05$

³ Bennett and Clatworthy (1999), Borland et al. (1991), De Vries & Backbier (1994), DeVries et al. (1995), Hanson (1999), Hill et al. (1997).

⁴ Although Conner et al. (in press) labelled the intentions assessed in their study "intention to smoke", the items used to assess intention was worded in the following manner: "I do not intend to smoke", "I will not smoke". Consequently, their study was placed under the category "intention to refrain from smoking".

The remaining studies, except from one (i.e., Higgins & Conner, 2003, study 2), predicted intentions measured at Time 1 (see Table I for further details). When multiple steps were conducted (containing extension variables), β -coefficients from the first step were reported. In Table II, only studies which assessed both intentions and PBC as suggested by Ajzen (1991), and studies which contain prospective measures of behaviours, were included. Behaviour measured at the same time as intention is considered to be a measure of past behaviour (e.g., Armitage & Conner, 2001). Consequently, a number of studies were excluded⁵. Like in Table I, when multiple steps were conducted (containing extension variables), β -coefficients from the first step were reported.

Table II Impact of intention (INT) and perceived behavioural control (PBC) on behaviours (Time 2) reported by means of beta coefficients (β) and explained variance (R^2). Average β -values are weighed by sample size (N).

Behaviours	Samples at Time 1	Time		β		R^2
		between T1 & T2	N	INT	PBC	
<i>Attempt not to smoke</i>						
1. Conner et al., in press, 2	Non-smokers	9 m	675	.13**	-.22***	.09
2. Godin et al., 1992, 1	Smokers	8-9 m	136	.16ns	.42***	.27
3. Godin et al., 1992, 1	Non-smokers	8-9 m	210	.03ns	.13ns	.02
4. Godin et al., 1992, 2	Smokers	8-9 m	53	-.19ns	.80***	.46
5. Godin et al., 1992, 2	Non-smokers	8-9 m	86	.02ns	.30**	.09
6. Higgins & Conner, 2003	Smokers/non-smokers ^{LR}	8 w	162	.93***	-.21ns	NR
<i>Smoking</i>						
7. McMillan & Conner, 2003	Smokers/non-smokers	6 m	141	.37***	.42***	.42
8. McMillan et al., 2005	Smokers/non-smokers ^{LR}	3 m	620	.37*	-1.16***	.29
<i>Attempt to quit smoking</i>						
9. Johnston et al., 2004	Smokers ^{LR}	12 m	174	1.98ns	1.78*	NR
10. Norman et al., 1999	Smokers ^{LR}	6 m	60	.65**	.30ns	NR
Average β , weighed by N			1301	.14*	.28***	.23

Note. NR = R^2 was not reported. Multiple linear regression (MLR) was used if not otherwise reported (cf., LR = Logistic regression). The R^2 reported by McMillan et al. (2005) is Nagelkerke and can not be compared with R^2 from MLR analysis employed in the other studies. If several studies were conducted, the number of the study is indicated in each case (e.g., Godin et al., 1992, 1). Time between Time 1 and Time two: m = months and w = weeks. *** $p < .001$, ** $p < .01$, * $p < .05$

Average beta-values (β) were computed to provide a picture of the relative importance of the TPB components using the formula presented by Hunter and Schmidt (1990)⁶. We chose to report beta-coefficients since several of the studies did not report bivariate correlations coefficients. Studies applying logistic regression analysis were excluded when estimating the average β -values for intentions and PBC. Thus, the average β -values for attitude, subjective norm and PBC as presented in Table I are based on the results from 20 studies, while the

⁵ Babrow et al. (1990), Bennett and Clatworthy (1999), Black and Babrow (1991), Borland et al. (1991), De Vries and Backbier (1994), DeVries et al. (1995), Hanson (1997), Hanson (1999), Hill and Boudreau (1999), Hill et al. (1997), and Maher and Rickwood (1997).

⁶ $\bar{\beta} = \frac{\sum [N_i \beta_i]}{\sum N_i}$ where N_i is the number of persons in study i and β_i is the beta-coefficient in study i

average β -values for intention and PBC as presented in Table II are based on the results from 6 studies.

Across the studies listed in Table I, the combination of attitude, subjective norms and PBC predicted 34 per cent (average of 16 studies) of the variance in intentions. Subjective norm was the weakest predictor of intention in 16 of 20 studies and non-significant in 9 of 20 studies. The average β -value of subjective norm was 0.12 ($p < .05$). PBC was the strongest predictor of intentions in most instances (10 of 20 studies) with an average β -value of 0.34 ($p < .001$). Attitude was the strongest predictor in 7 of 20 studies (average β -value = 0.29, $p < .001$). This pattern was relatively consistent across behavioural intentions: e.g., "intention to refrain from smoking", "intention to smoke", and "intention to quit smoking". However, since the number of studies in each category is relatively small, it is too early to draw firm conclusions concerning the generality of these findings.

The results in Table II show that intentions and PBC accounted for an average of 23 per cent (average of 6 studies) in subsequent behaviour. Intentions were significantly related to behaviour in 5 of 10 studies (average β -value = 0.14, $p < .05$), while PBC was a significant predictor of behaviour in 7 of 10 studies. PBC was the strongest predictor of behaviour in 8 of 10 studies, with an average β -value of 0.28 ($p < .001$).

Regarding the relative impact of the TPB components, it is important to keep in mind that the importance of these variables might vary across behaviours (cf. Ajzen, 1991). For instance, a smoker might need a high degree of control when quitting smoking, while continuing smoking might not require the same degree of control. Thus, one should be careful when comparing studies that are conducted on different behaviours. Moreover, almost one half of the studies which have applied the TPB to study intentions in this context have studied smoking among smokers and non-smokers combined (see Table I). Again, different processes might guide the intention formation process of a smoker considering smoking compared to a non-smoker considering the same behaviour. In addition, it is probably easier for a smoker than a non-smoker to consider whether smoking or not since s/he is more familiar with the behaviour. In fact, a non-smoker might not have considered smoking at all. Consequently, a smoker might have more consistent attitudes towards smoking, and accordingly, this might result in better prediction of intentions and behaviour. The results from the studies of Godin et al. (1992), conducted among adults, seem to support this notion (see Table I). Thus, as recommended by some authors, the process of transition from one smoking category to another should be predicted (e.g., Leventhal & Cleary, 1980; Chassin, Presson, Sherman, Corty & Olshavsky, 1984). Hence, to predict smoking initiation for example, one should select a sample of non-smokers to examine the factors preceding the change from non-smoking to smoking. The respective papers included in this thesis contained "pure" non-smoker (Paper IV) and smoker samples at Time 1 (Paper I, II and III).

Nevertheless, meta-analysis of the TPB (e.g., Armitage & Conner, 2001; Sheeran, 2002) are generally conducted on a wide range of behaviours, e.g., condom use, exercise behaviour, smoking, testicular self-examination, dieting, and travel mode choice etc. Thus, we might argue that the difference between "condom use" and "travel-mode choice" is larger than the difference between "smoking" and "smoking cessation".

The results in Table I corresponds with data from almost three decades of research on the TRA and TPB which suggest that the support for the role of norms in both theories has been relatively weak (Ajzen, 1991; Armitage & Conner, 2001). In contrast to the meta-analysis of Armitage and Conner (2001) where attitude was the strongest predictor of intention, the results in Table I show that PBC ($\beta = .34$) was somewhat stronger related to intentions than attitudes ($\beta = .29$). The results presented in Table II are also consistent with previous research in that intentions and PBC are not always sufficient in terms of realization of an act (Sheeran, 2002; Rothman, Baldwin & Hertzell, 2004). Relatively few studies have applied the TPB to predict smoking cessation and smoking initiation. However, the results in Table II do show that PBC

($\beta = .28$) was stronger related to behavioural performance in this area than intentions ($\beta = .14$). These results stand in contrast to the findings of Armitage and Conner (2001), i.e., that intentions were stronger predictors of behaviour than PBC. On the other hand, the results are consistent with the results from the meta-analysis of Godin and Kok (1996) which showed that PBC was a stronger predictor of addictive behaviours than intentions. These findings are in accord with the idea presented by Ajzen (1991) that the impact of the TPB components might differ across behaviour and situations.

2.2 EXTENDING THE TPB

The TPB is held to be a complete theory of behaviour in that other influences (e.g., demographic variables, past behaviour, personality etc.) are assumed to have impact on behaviour via influencing components of the model. However, the TPB is perhaps more correctly regarded as a theory of the proximal determinants of behaviour. Thus, the model gives a description of the processes by which beliefs and attitudes determine behaviour, but not of the process whereby other variables (e.g., personality) influence components of the TPB.

Ajzen (1991) described the model as open to further elaboration if further important determinants are identified:

"The theory of planned behaviour is, in principle, open to the inclusion of additional predictors if it can be shown that they capture a significant proportion of the variance in intention or behavior after the theory's current variables have been taken into account." (p. 199).

However, for the sake of parsimony, additional predictors should be proposed and included in the theory with caution, and only after careful deliberation and empirical exploration. For instance, O'Keefe (2002) proposes two criteria that should be used to evaluate additional predictors in the TPB. First, a given conceptual candidate should provide a large additional contribution to the prediction of intention (after controlling for the components of the TPB) which reaches well beyond statistical significance, and second, the proposed concept needs to demonstrate its utility in predicting intentions across a wide range of behavioural domains (see also Conner & Armitage, 1998).

Several additional variables have been proposed as useful supplements to the model. The most frequently used variables seem to be *past behaviour/habit, moral norms, self-identity, anticipated affective reactions* (cf. Conner & Armitage, 1998; O'Keefe, 2002) and *descriptive norms* (cf. Ravis & Sheeran, 2004). Despite the fact that these variables have been added to the TPB with some success across a wide range of behaviours (cf. Conner & Armitage, 1998; O'Keefe, 2002), few studies have applied these extension variables in relation to smoking cessation and smoking initiation. Nevertheless, as we argue below, it is reason to believe that these processes might contribute to our understanding of smoking cessation and smoking initiation as well. Another argument in favour of choosing the current predictors is that few studies have tested the relative impact of these variables simultaneously in a single TPB study, and no study addressing smoking cessation or smoking initiation have tested the impact of the current predictors simultaneously. Thus, based on these grounds, and the fact that these variables seem to have satisfied the criteria outlined by O'Keefe (2002), these variables were chosen for the present study.

2.2.1 Past behaviour

A number of studies have shown that *past behaviour* predict intentions, beyond the effect accounted for by the TPB components (e.g., Conner & Armitage, 1998; Ouellette & Wood,

1998). Conner and Armitage (1998) reported that past behaviour explained 7.2% of the variance in intention, after the TPB components had been accounted for. A second typical finding is that past behaviour can have a direct impact on future behaviour, beyond the effects of the TPB components (see Ouellette & Wood, 1998; Conner & Armitage, 1998 for meta-analytic reviews). Conner and Armitage (1998) reported that past behaviour added 13% to the explained variance in behaviour after taking intention and PBC into account. Thus, according to Cohen's (1988) classification, these improvements represent small-to-medium effect sizes.

The residual effect of past behaviour on intention may reflect that the TPB does not give a complete picture of the intention formation process (e.g., Conner & Armitage, 1998). The direct relationship between past behaviour and future behaviour is more controversial (e.g., Ajzen, 2002; Bamberg, Ajzen & Schmidt, 2003; Conner & Armitage, 1998; Ouelette and Wood, 1998; Rhodes & Courneya, 2003; Verplanken & Arts, 1999). Several explanations of past behaviour-future behaviour relationship have been suggested: (i) when behaviour habituates with repeated performances, the frequency of past performances of the behaviour might be an indicator of habit strength (e.g., Aarts, Verplanken & Van Knippenberg, 1998; Ouellette & Wood, 1998), (ii) factors controlling behaviour in the past, that is intentions and PBC, have changed (Ajzen, 2001), (iii) the past behaviour-future behaviour relation indicates that the particular behaviour is stable over time (Ajzen, 2002). Furthermore, (iv) Ajzen (2002) sounded a warning against use of similar measurement scales at both points of time which tend to produce common method variance for the two behavioural measures. However, empirical studies (Bamberg et al., 2003; Conner, Warren, Close & Sparks, 1999) indicate that this does not represent the whole explanation. Moreover, (v) Rhodes and Courneya (2003) suggested that the TPB cognitions may be temporally unstable and thus be unable to mediate residual variance of past behaviour. Finally, (vi) the residual effect of past behaviour on subsequent behavioural performance might reflect the omission of other factors as postulated above.

The impact of past behaviour, beyond the effect of the TPB components, has been supported in relation to intentions to quit smoking (Falomir & Invernizzi, 1999; Hu & Lanese, 1998; Willemsen et al., 1996) and the subsequent making of the quitting attempt (Norman et al., 1999). Past smoking behaviour has also appeared as an important predictor of studies addressing smoking initiation among adolescents (Engels et al., 1999). However, few studies seem to have tested the impact of past behaviour on intentions in this context. In terms of effect sizes, most studies found that the relationship between past behaviour and intentions were small-to-medium (e.g., Falomir & Invernizzi, 1999; Norman et al., 1999). Moreover, the relationship between past behaviour and future smoking behaviour was medium-to-large according to Cohen (1988) (e.g., Engels et al., 1999; Norman et al., 1999).

Thus, in addition to the TPB, the impact of past behaviour on intention and behaviour was examined in Paper II, III and IV. In Paper II we also examined the notion that the more often a smoker has tried to quit smoking in the past (this is equivalent to saying that it has become under stimulus control), the less the actual quitting should be guided by intentions to quit (cf. Triandis, 1980). Thus, we expected there to be an interaction between past behaviour and intention in predicting subsequent behaviour.

2.2.2 Normative influence

Previous research suggests that normative influences play an important role in relation to smoking initiation and smoking cessation (Baker et al., 2004; Conrad et al., 1992; Sussman, 2002; Tyas & Pederson, 1998). Nevertheless, *subjective norm* generally appear as the weakest predictor of intentions in studies addressing smoking initiation and cessation (see Table I). Armitage and Conner (2001) found that the number of items used to measure subjective norm significantly moderated the subjective norm-intentions correlations, i.e., multiple items resulted in stronger correlations ($r = .38$) across tests than single-item measures ($r = .28$). Eight of the

studies included in Table I applied single-item measures of subjective norm. In 6 of these 8 studies, i.e., 75% of the instances, subjective norms were not significantly related to intentions. Moreover, 3 of the 12 studies which applied multiple items, i.e., 25%, reported that subjective norm was not significantly related to intentions. Thus, in accord with Armitage and Conner (2001), these results indicate that one might expect stronger subjective norm-intention relations if multiple items are used when assessing subjective norms in the context of smoking. Another point of departure is that the definition of subjective norms is too narrow to capture all aspects of social influence (cf. Terry & Hogg, 1996).

According to Cialdini, Reno and Kallgren (1990) normative influences may stem from a variety of sources, and they suggest that it may be useful to distinguish between *injunctive norms* (akin to subjective norms) as they concern the social approval or disapproval of others, *descriptive norms*⁷, which is concerned with what others are doing, and *moral norms*, which concern what is right or wrong to do. Normative influence is evidently important in relation to smoking initiation and smoking cessation. Nonetheless, as stated by Kobus (2003), the nature of the processes underlying this influence is still unclear. Thus, the relative influence of different sources of normative pressure is of particular interest. No study seems to have examined the impact of these variables simultaneously in relation to smoking cessation and smoking initiation.

Descriptive norms reflect what is perceived as common or normal, i.e., what most people do. Thus, descriptive norms motivate the individual by providing evidence as to what will likely be effective and adaptive action: "If everyone is doing it, it must be a sensible thing to do" (p. 1015, Cialdini et al., 1990). Ravis and Sheeran (2004) found in a recent meta-analysis that descriptive norms increased the variance explained in intention by 5 per cent after the TPB components had been taken into account (i.e., an improvement representing a small-to-medium effect size). Moreover, younger samples and health risk behaviours were both associated with stronger correlations between descriptive norms and intentions. The importance of descriptive norm as an additional predictor in the TPB has also been demonstrated in studies addressing intentions and behaviours in the domain of smoking (e.g., Grube, Morgan, & McGree, 1986; McMillan & Conner, 2003; McMillan et al., 2005). Effect sizes of the descriptive norm – intention relation were small-to-medium in all studies whereas the descriptive norm – behaviour relation represented small-to-large effect sizes. However, few studies seem to have tested the impact of descriptive norms, beyond the impact of the TPB components, in relation to smoking cessation (Rise et al., 2005) and smoking initiation (de Vries et al., 1995; Engels et al., 1999).

Terry & Hogg (1996) reasoned from a social identity perspective and suggested that norms are tied to specific groups, and that a norm has an effect because that specific group is behaviourally relevant. Accordingly, they suggested that one should focus on the norms of the reference group (cf. group norms) which are salient in the particular behavioural context. Thus, they suggested that behavioural intentions only would be influenced by perceived reference group norms when group membership is a salient basis for self-definition, i.e., for subjects who identify strongly with the group. Empirical evidence for this idea has been found for exercise and sun-protective behaviours (Terry and Hogg, 1996), household recycling (Terry, Hogg & White, 1999), healthy eating (Åström & Rise, 2001), binge drinking (Johnston & White, 2003), and smoking (Schofield, Pattison, Hill, Borland, 2001; Shofield, Pattison, Hill & Borland, 2003). However, to determine the extent of generality of this relationship, further research

⁷Ajzen (2002) recognized that since important others generally are perceived to approve of desirable behaviours and disapprove of undesirable behaviours, subjective norms are often found to have low variability. Thus, to alleviate this problem Ajzen (2002) recommended that the measure of subjective norm also should include items designed to capture descriptive norms. See: <http://www.people.umass.edu/ajzen/pdf/tpb.measurement.pdf>

should be conducted on other behaviours (e.g., smoking cessation and smoking initiation) and in other groups.

The impact of descriptive norm, and the group identification × group norm interaction, was examined in relation to intention and behaviour in Paper III and Paper IV.

Ajzen (1991) argued that *moral norms* may provide a useful addition to the TPB. Moral norms are regarded as an individual's perception of the moral correctness or incorrectness of performing a behaviour (Ajzen, 1991) and take account of "*personal* feelings of moral obligation or responsibility to perform, or refuse to perform, a certain behavior" (Ajzen, 1991, p. 199). Moral norms of the society at large becomes internalised during adolescence, and may thus be a source of motivation needless of much deliberation about the costs and benefits of the particular behaviour and the actions or opinions of valued others (cf. Manstead, 2000). Particularly moral considerations should have an influence on the performance of those behaviours with a moral or ethical dimension (Beck & Ajzen, 1991).

In the context of the TPB moral norms have been included as an additional predictor of intentions with some success across a wide range of behaviours (e.g., Conner & Armitage, 1998; Manstead, 2000, for reviews). Conner and Armitage (1998) found that in nine out of ten studies, moral norm was a significant predictor of intentions after the TPB variables were controlled for, and that moral norm added an average of 4% (i.e., an improvement representing a small-to-medium effect size) to the predictions of intentions. Moreover, some studies have found support for the direct relation between moral norms and behaviour (e.g., Beck & Ajzen, 1991; Manstead, 2000). An attempt to conceptualise the way in which moral norm influence behaviour can be found in norm-activation theory (NAT; Schwartz, 1977). According to Schwartz (1977) it is likely that individuals adopt specific behaviours by conviction, that is, because they feel a moral obligation to adopt them: "individuals sometimes act in response to their own self-expectations, their own personal norms" (p. 231). Thus, according to NAT, a given behaviour is adopted not because of the expected outcomes of performance, but for more internalised feelings that can be captured by the concept of moral norm. Schwartz (1977) assumed that these personal norms are not experienced as intentions, but as feelings of moral obligation and so can directly influence behaviour.

McMillan et al. (2005) tested the impact of injunctive, descriptive, and moral norms in relation to adolescents' intentions to smoke. All predictors were significantly related to intentions, but moral norm had the strongest impact. The moral norms – intention relation represented a large effect size ($r = .58$), while the moral norm – behaviour relation represented a medium effect size ($r = .32$). McMillan and Conner (2003), on the other hand, found no significant impact of moral norm on students' (mainly in the 19-22 year age range) intentions to smoke and subsequent behaviour (i.e., small and medium effect sizes). Whether moral norms are relevant in the context of smoking cessation and smoking initiation is an empirical issue addressed in the current studies.

Thus, moral norm was included as an additional predictor of intention in all papers, and the moral norm – behaviour relation was examined in Paper II, III and IV.

Another possible source of normative influence concerning smoking is that there exists a pressure from e.g., friends to smoke ("*peer group pressure*"). Kobus (2003) suggests that pressures to smoke cigarettes are predominately normative, and not direct and coercive, in nature. However, Friedman, Lichtenstein and Biglan (1985; see also Evans, Dratt, Raines & Rosenberg, 1978) argue that pressures to smoke are implicit in the majority of smoking situations, and cite adolescents' report of cigarette offers, verbal encouragement and teasing as evidence of such pressure. In accord with this notion, De Vries et al. (1995) found that perceived social pressure (e.g., "Did you encounter pressure to smoke from your father?") predicted present and future smoking behaviour, beyond the effect of attitude, perceived smoking of valued others and self-efficacy.

In Paper IV we tested the impact of perceived social pressure (e.g., "You should have a cigarette!") on adolescents' intentions to refrain from smoking and subsequent behaviour one year later.

2.2.3 Identity

According to identity theory *self-identity* provides the theoretical link between self and social structure (cf. Thoits & Virshup, 1997). Hence, people use socio-demographic characteristics (e.g., gender, Norwegian), social roles (e.g., mother, doctor), and large scale categories (e.g., exerciser, smoker) to describe themselves in terms of "who am I?". Thus, "...self-identity may be defined as the salient part of an actor's self which relates to a particular behaviour..." (cf. Conner & Armitage, 1998, p. 1444). Charng, Piliavin and Callero (1988) argue that the TPB and self-identity are compatible, i.e., both the TRA/TPB and identity theory assume that behaviour is determined by conscious and intentional decisions. However, while identity theory focus on the influence of the wider social context, the TRA/TPB deals with a more restricted normative component (i.e., subjective norm).

Self-identity has been shown to add to the prediction of intentions (e.g., Rise, Sheeran & Skalle, 2003; Sparks, 2000), beyond the components of the TPB across a wide range of behaviours. The meta-analysis of Rise et al. (2003) revealed that self-identity accounted for 7% (i.e., a small-to-medium effect size) additional variance in intention above the TPB components and past behaviour. Conner and Armitage (2002) offered two possible explanations of the self-identity-intention link. First, derived from identity theory people may more likely be motivated to retain to the sense of who they are, i.e., their selves, than to attitudes and norms, when deliberating over whether to perform a behaviour or not (Charng et al., 1988). Second, individuals may be motivated to communicate their values and identity to other persons, e.g., smoking may become a communicative act in this case by showing what kind of persons they want to be (Leventhal & Cleary, 1980).

Some authors have also suggested that there is an interaction between self-identity and past behaviour (e.g., Charng et al., 1988). The idea is that a particular behaviour which is performed frequently in the past, e.g., smoking, become internalised as an important sense of self. Based on this idea, the self-identity-intention relation is expected to be stronger for individuals who have smoked frequently in the past than for those who have smoked occasionally (Charng et al., 1988). Moreover, some studies have found empirical support for the idea that those who intend to behave as implied by their self-identity will be more likely to perform the behaviour in question than people who intend to do something not implied by their identity (cf. Granberg & Holmberg, 1990; see also Charng et al., 1988; Jackson, Smith & Conner, 2003; Sparks, 2000).

The inclusion of self-identity in the TPB has been supported in relation to adolescents' intentions to quit smoking (cf. Falomir & Invernizzi, 1999). Falomir and Invernizzi (1999) found a medium size correlation between self-identity and intention. However, a closer inspection of their measure of self-identity showed that it was a combination of self-description ("to what extent do you feel as a smoker") and identification with the group of smokers ("to what extent do you identify with the group of smokers?").

Hence, while self-descriptions (or self-identity) constitute "me-identification" and reflects individual level identification, identifications with a group constitute "we-identifications" reflecting identification at the collective level (Thoits & Virshup, 1997). Consequently it is possible that the direct effect of self-identity in the above study partly reflect an influence from *group identity*. The concept of group identity derives from social identity theory (Tajfel & Turner, 1979). A basic tenet of social identity theory is that a social category, e.g., the group of smokers, which people feel they belong to (or fall into) also provides a source of self-definition, and to the extent that it is salient, a group identity may determine how one feels,

thinks and behaves. The increase in regulatory measures directed at smoking along with the increased emphasis on antismoking campaigns have presumably enhanced the social categorisation into smokers and non-smokers, that is, strengthened the salience of the identity of the group of smokers (cf. Falomir & Invernizzi, 1999). Furthermore, people by and large have a basic need for a positive view of themselves and their groups, but smokers are aware of the fact that they find themselves in a socially stigmatised position, thus having a negative identity. Hence smokers have a need to raise their self-esteem, and the lower the degree of group identification, the more they choose to leave their group and join a more valued group, that is, non-smokers. On the other hand, smokers with a strong sense of group identification will more likely tend to defend their identity by engaging in cognitive restructuring, social creativity or various types of collective action (cf. Falomir & Invernizzi, 1999). In Paper III a theoretically derived measure of group identity developed by Ellemers, Kortekaas and Ouwerkerk (1999) was adapted. We succeeded in identifying one study which have tested the impact of group identity in the context of the TPB, and in relation to smoking (cf. Rise & Moan, 2004).

The impact of self-identity on intention was examined in all papers, and the self-identity-behaviour relation was examined in Paper II, III and IV. The assumed interaction between past behaviour and self-identity was tested in relation to intentions and behaviour in Papers II, III and IV. In Paper II, the impact of group identity in predicting the intention to quit smoking and the subsequent behaviour was tested.

Moreover, in Paper I we both applied a measure of *self-identity as a smoker* and *identity as a parent* (mother and father, respectively). Self-identity as a smoker is a specific identity having straightforward behavioural implications, i.e. if one's description of oneself as a smoker is strong, the probability that one intends to smoke indoors in the presence of one's children should be higher than if this belief is not so strongly held. On the other hand, the meaning of parent identity and appropriate behaviours to be enacted, need to be negotiated. Thus whether smoking indoors while the children are present is one of these behaviours which are to be enacted if one's parent identity is strong, is a question which needs to be determined empirically. Moreover, the effect of smoker identity might depend on the degree to which an individual identifies him or herself as being a parent.

In addition, it might be argued that *moral norms* and *parent identity* are closely connected in the sense that if a parent is likely to have her/his parent identity salient in a ETS-smoking decision then s/he might at the same time perceive a moral obligation not to smoke indoors when his/her children are present.

Hence, in addition to testing the direct impact of smoker identity and parent identity in Paper I, we also tested whether parent identity could moderate the impact of smoker identity (i.e., when parent identity is strong, the impact of smoker identity is weakened) by including an interaction term of parent identity and smoker identity. In Paper I we also tested whether there could be an interaction between moral norms and parent identity.

2.2.4 Anticipated affect

The TPB has traditionally emphasized the cognitive-evaluative component of attitude and neglected the affective component. However, some authors have found empirical support for an explicit distinction between evaluative and affective components of attitude (see Breckler & Wiggins, 1989; Trafimow & Sheeran, 1998; Verplanken, Hofstee & Janssen, 1998).

Richard and co-workers (cf. Richard, van der Pligt and de Vries, 1995; see also Parker, Manstead & Stradling, 1995) were among the first to initiate research addressing the role of affect in the context of the TPB. Since the TPB deals with future behaviour, they suggested that it would be appropriate to investigate the impact of *anticipated affective reactions* (e.g.,

Richard et al., 1995). They demonstrated that anticipated affective reactions of a particular behaviour, i.e., feelings about having performed the target behaviour, predicted intentions beyond the TPB components (Richard et al., 1995, 1996a, 1996b; see also Abraham & Sheeran, 2003; Abraham & Sheeran, 2004; Conner & Flesch, 2001; Richard, de Vries & van der Pligt, 1998; Parker et al., 1995; Sheeran & Orbell, 1999). Two recent studies have addressed the role of anticipated regret in the TPB and in relation to smoking. Conner et al. (in press) examined the role of anticipated regret in relation to adolescents' intentions to refrain from smoking (two studies) and subsequent behaviour (one study), and found that anticipated regret predicted intention ($r = -.47$, Study 1; $r = -.55$, Study 2) beyond the effect accounted for by the TPB components, but not behaviour. McMillan et al. (2005) found that anticipated regret predicted adolescents intentions to smoke ($r = -.47$), but not subsequent smoking behaviour. Conner et al. (in press) did, on the other hand, find that anticipated regret moderated the intention-behaviour relation (see also Abraham & Sheeran, 2003; Sheeran & Orbell, 1999). Specifically, the results showed that a high degree of anticipated affect resulted in a stronger intention-behaviour relationship. This finding indicate that high levels of anticipated regret may bind people to their intentions and consequently strengthen their intentions because failing to act would be associated with aversive affect (cf. Sheeran & Orbell, 1999).

Most studies addressing anticipated affective reactions have focused on anticipated regret of performing or not performing a specific behaviour (see Conner et al., in press, for review). However, Perugini and Bagozzi (2001) suggested that within the context of goal-directed behaviour anticipated positive and negative affective reactions are distinct concepts implying that they are not opposite poles on the same dimension. Bagozzi, Wong and Yi (1999) found in a study that positive and negative anticipated affect can be positively or negatively related (or unrelated), depending on the circumstances. Moreover, Bagozzi, Baumgartner and Pieters (1998) found that *positive and negative anticipated emotions* were positively correlated yet clearly differentiated. Thus, Perugini and Bagozzi (2001) suggested that using a bipolar scale to measure emotions (which is common within the framework of the TPB) would make positive and negative affect mutually exclusive by definition and not permit respondents the opportunity to express their differential relevance. The study of Perugini and Bagozzi (2001) provided evidence that positive and negative anticipated affect are distinct concepts in relation to prediction of goal-directed behaviours, i.e., for behaviours which are performed for the sake of goal achievement. Thus, it is worthwhile to test whether the same distinction holds for prediction of specific behaviours in the context of the TPB. We were not able to identify any study which has addressed this issue in relation to the TPB and with respect to smoking.

Anticipated affective reactions have been linked to moral norms (e.g., Conner & Armitage, 1998; Manstead, 2000; O'Keefe, 2002). One may for example argue that if an individual holds a strong belief that it is morally wrong to smoke, it is likely that s/he will experience regret and guilt if s/he does not live up to his/her personal standards of behaving (Manstead, 2000). Thus, we might expect there to be an interaction between moral norms and negative anticipated affect. To our knowledge, this idea has not been tested empirically in previous TPB research.

The impact of positive and negative anticipated affect on intentions was examined in Paper I and II, and the impact of positive and negative anticipated affect on behaviour was tested in Paper II. The moderating role of positive and negative anticipated affect in relation to behaviour was tested in Paper II. Finally, the interaction between moral norm and negative anticipated affect was tested in relation to intention in Paper I and Paper II, and in relation to behaviour in Paper II.

In sum, it exist a considerable body of empirical evidence showing that past behaviour, descriptive norms/group norms, moral norms, self-identity and negative affective reactions predict intentions, beyond the effect accounted for by the TPB components, while less empirical work has been conducted to explore the utility of group identity and positive anticipated affect. Several questions remain unsolved. First, few studies have tested the impact

of these variables in relation to intentions to quit/refrain from smoking, and hence, research is needed to determine to what extent smoking related decisions are predicted by these factors. Second, relatively few studies have examined whether these variables might predict behaviours, and specifically smoking cessation and smoking initiation. Third, few studies have applied the variables simultaneously within the TPB framework, and no study seem to have employed the specified predictors simultaneously in relation to smoking cessation and/or smoking initiation. Finally, several authors have argued that some of these concepts are intertwined (e.g., O'Keefe, 2002). Notwithstanding, affective reactions might obviously be anticipated in the absence of moral considerations (cf. Manstead, 2000; O'Keefe, 2002). Hence, it is possible to argue that the concepts are related. However, they should preferably be treated as differentiated concepts (cf. O'Keefe, 2002). Although, several authors have argued theoretically that these concepts are distinct, few studies have tested whether these concepts operate as distinct construct empirically.

Thus, all papers tested whether the independent variables included in each study could be regarded as independent predictors using principal component analysis.

2.3 THE INTENTION-BEHAVIOUR RELATIONSHIP

According to the TPB people do what they intend to do and do not what they do not intend. However, meta-analysis of the TPB show that intention and PBC account for an average of 27% in behaviour (Armitage & Conner, 2001; see also Sheeran, 2002). Results from studies predicting behaviour in the domain of smoking indicate that the intention-behaviour gap is even greater in this context (cf. McMillan & Conner, 2003). McMillan and Conner (2003) reported that across a number of studies the combination of intention and PBC accounted for less than 10% of the variance in smoking behaviours. The results which are reported in Table II show that intentions were significantly related to behaviour in 5/10 cases while PBC was a significant predictor of behaviour in 7/10 cases.

In terms of predictive utility the TPB performs better than other social cognitive models (cf. Armitage & Conner, 2000). Moreover, in light of Cohen's (1988) classification of effect sizes the TPB accounts for a large amount of the explained variance in behaviour. Nevertheless, results across a wide range of studies do indicate that more than 70% of the variance in behaviour remained unexplained by the model. In the domain of smoking, the discrepancy tends to be even greater. So, why is there a gap between intention and behaviour?

2.3.1 Sources of the I-B gap

Traditional measures of effect size do not illuminate the sources of consistency and discrepancy between intention and behaviour (cf. Orbell, 2004; Sheeran, 2002). To gain insight into this issue, Orbell and Sheeran (1998) decomposed the intention-behaviour relation into a 2 (intention: to act vs. not to act) \times 2 (behaviour: acted vs. did not act) matrix (see also McBroom & Reed, 1992). This procedure divides the sample into four subgroups: inclined actors/abstainers and disinclined actors/abstainers, allowing us to attribute the intention-behaviour consistency into two groups; participants with positive intentions who subsequently act ("*inclined actors*") and participants with negative intentions who do not act ("*disinclined abstainers*"). Of greater importance, this method enables us to identify which group is responsible for the gap, that is, participants with positive intentions who fail to act ("*inclined abstainers*") and participants with negative intentions who perform the behaviour despite of their intentions not to do so ("*disinclined actors*").

Orbell (2004) examined the intention-behaviour consistency in nine studies and found that the lack of consistency between intentions and behaviour mainly was caused by intenders who failed to act on their intentions (median number of inclined abstainers = 46%) and participants

with negative intentions who ultimately perform the behaviour (median number of disinclined actors = 9.5%). Orbell (2004) found that this pattern was consistent across three classes of behaviours: approach behaviours that are discrete acts (e.g., single attendance at cancer screening), approach behaviours that involve repeated behaviours (e.g., regular physical activity) and avoidance behaviours where the intenders must successfully resist performing a focal behaviour consistently over a period of time (e.g., not eating late night junk food). Thus, barely more than one-half of people with positive intentions to engage in health behaviours successfully translate those intentions into actions.

Moreover, an important issue for understanding the intention-behaviour gap is to consider whether the variables in socio-cognitive models such as the TPB can discriminate between inclined actors and inclined abstainers. Orbell (2004) reported that only two studies have addressed this issue. First, in the area of cancer screening Orbell and Sheeran (1998) were not able to discriminate disinclined abstainers from the three other groups using variables derived from PMT. Second, Sheeran (2002) was not able to discriminate between inclined actors and abstainers when applying the TPB to study exercise. Thus, it might be worthwhile to extend this analysis using a broader set of predictors as well as new behaviours.

In Paper II this procedure was adopted to explore the relation between students' intentions to quit smoking and the subsequent behavioural performance six months later. We also applied discriminant analysis to test whether the extended TPB model could discriminate between the four groups.

2.3.2 Substantive explanations of the I-B gap

The results above indicate that in spite of an equivalent motivation people might differ in their likelihood of performing the behaviour. One possible explanation of these findings is that intentions and perceptions of behavioural control might change so that the original measures of these variables no longer permit accurate prediction of behaviour (Ajzen, 1991). Consistent with this reasoning, studies do indicate that more stable intentions results in stronger intention-behaviour relationships (e.g., Conner, Norman & Bell, 2002; Conner et al., in press; Conner, Sheeran, Norman & Armitage, 2000, study 1 & study 2; Doll & Ajzen, 1992; Sheeran & Abraham, 2003; Sheeran, Orbell & Trafimow, 1999). Moreover, some studies have found that when intentions were stable, past behaviour was no longer a significant determinant of future behaviour (cf. Ajzen, 2002; Conner, Sheeran, Norman & Armitage, 2000). Fishbein and Ajzen (1980) suggested that for maximal prediction, the measurement of the intention should be as close as possible in time to observation of behaviour.

However, in their meta-analysis Randall and Wolff (1994) did not find support for the idea that the strength of the intention-behaviour relationship varied as a function of the time interval between the measurement of intention and behaviour. They did, on the other hand, find that type of behaviour was clearly linked to the strength of the intention-behaviour relationship. Specifically they found that the intention-behaviour relationship for alcohol/drug-related activities declined sharply over time⁸. Sheeran and Orbell (1998) argued that the data used by Randall and Wolff (1994) were too sparse to conclude the time interval did not moderate the intention-behaviour relationship. Correspondingly, the results from their meta-analysis conducted on studies of condom use, showed that shorter time intervals were associated with significantly stronger intention-behaviour correlations (Sheeran & Orbell, 1998). Nonetheless, as noted by Sutton (1998), longer time intervals do allow more opportunities for a behaviour to be performed and should thus increase the intention-behaviour correlation. Consequently, when choosing the time interval between the measurement points, one should take behavioural

⁸ Note, however, that the findings of Randall and Wolff (1994) should be regarded as tentative since only six types of behaviour were examined with a limited number of studies in each category.

characteristics into account. Since quitting or reducing smoking can be regarded as complex and difficult behaviours to perform (e.g., because of nicotine dependency), one should arguably give participants some time between the measurement of intention and behaviour.

The points outlined above provide some explanations of why intentions and PBC are not always strong predictors of behaviour. Moreover, the extension variables most commonly used to predict intention (i.e., moral norm, self-identity, descriptive norm and anticipated affective reactions) have also been found to predict behaviour, beyond the TPB components. Nevertheless, they do not provide solutions as to how people may meet the problems they are likely to encounter when trying to translate their intentions into actions. For example, people may possess intentions that cannot be realized immediately but have to await a suitable opportunity and they may possess other competing intentions which gain priority (Kuhl, 1992). Thus, much of the research associated with motivational models employs measures of intention as the dependent variable (e.g., Godin & Kok, 1996), implying that motivation is sufficient for successful behavioural enaction. Fishbein and Ajzen (2005) acknowledged that the TPB is not an account of the processes implicated in the translation of intention into action, and thus the TPB needs to be supplemented with self-regulatory strategies (e.g., Rothman et al., 2004; Sheeran, 2002; Sheeran, Milne, Webb & Gollwitzer, 2005).

Criticism of the TPB and other motivational models has led to the development of "behavioural enaction" models, designed to account for the relatively poor correspondence between motivational variables and subsequent behaviour (see Armitage & Conner, 2000; Orbell, 2004; Sheeran, 2002; Sheeran et al., 2005, for reviews). Such models focus on action control strategies that are designed to ensure that motivation is translated into action. The models deal with self-regulation, a term sometimes used interchangeably with "self-control" or "self-management", which generally refers to any effort by a human being to alter its own responses (Baumeister, Heatherton & Tice, 1994). In relation to addictive behaviour such as smoking, self-regulation often refers to an attempt to override a well-learned drug use behaviour to realize a positive, long-lasting outcome. For instance, the constituent actions required for drug use (e.g., asking a friend for a cigarette, holding it, lighting it, inhaling) are voluntary behaviours that can be controlled (cf. Baumeister et al., 1994). Thus, drug use appears as an interesting domain for examining self-regulatory strategies.

2.3.2.1 Action planning

One such self-regulatory strategy is *action planning*, which is similar to implementation intentions, and works by linking goal-directed responses to situational cues by specifying when and where to act in order to translate the intention into lasting behavioural changes (see Rise, Thompson & Verplanken, 2003; Sniehotta, Scholz & Schwarzer, 2005; Sheeran et al., 2005). Verplanken and Faes (1999) argued that in addition to the importance of specifying the time and place for initiating behaviours, it could be equally important to specify *what* to do or *how* to perform a behaviour, especially for behaviours that are difficult to perform. Studies across a wide range of behavioural domains have shown that people who make such plans are more likely to act on their intentions than people who do not make such plans, and moreover, they will perform the behaviour faster or reach the goal sooner (see Sheeran et al. 2005, for review).

Few studies have tested the impact of the formation of implementation intentions or action planning in relation to smoking (i.e., Higgins & Conner, 2003; Rise et al., 2005). Higgins and Conner (2003) found only modest and non-significant differences when they compared children who had formed implementation intentions (how, where and when) to resist smoking with a control group who did not form such plans. However, Rise et al. (2005) found a significant impact (i.e., a large effect size) of action planning of how, when and where to quit smoking, beyond intention and PBC, in a sample of smoking students.

Several researchers have suggested that the processes which makes past behavior guide future behavior, and the processes that makes implementation intention influence future behavior have important similarities (Gollwitzer, 1993; Orbell, Hodgins & Sheeran, 1997; Verplanken & Faes, 1999). Orbell et al. (1997) found that among participants who had formed implementation intentions to perform breast self-examination (BSE), past behaviour had no impact on their subsequent BSE performance. For those who did not form implementation intentions, however, past behaviour was a strong predictor of BSE. However, Verplanken and Faes (1999) found a main effect of both past behaviour and implementation intentions in predicting healthy eating, indicating that implementation intentions were not able to break the effect of counterintentional habits. This reasoning applies to Paper III where smoking is in conflict with the planning (of how to reduce smoking).

Most research addressing the impact of action planning/implementation intentions have used experimental designs. However, some studies do indicate that people do possess a natural tendency to form such plans in order to self-regulate their behaviour (e.g., Rise et al., 2005; Rise et al., 2003; Webb & Sheeran, 2005). For example, Rise et al. (2003) developed a multi-item method for measuring implementation intentions in correlational research and found that the measure predicted exercise and recycling behaviour independent of goal intention. Moreover, Webb and Sheeran (2005) found that goal achievement was associated with self-reported formation of an implementation intention.

Paper III tested the effect of action planning using a multi-item method similar to the one used by Rise et al. (2003). Since adolescents seem to be particularly vulnerable to social pressure in relation to smoking (see De Vries et al., 1995; McMillan et al., 2005) and since quitting or reducing smoking is regarded as a complex and challenging goal to reach (see Orbell, 2004), action planning was conceptualised in terms of the *how* component, i.e., mainly how to avoid specific situations, persons and groups. In addition, the interaction between past behaviour and action planning was tested.

3. RESEARCH HYPOTHESIS AND QUESTIONS

There are four papers included in this thesis. The hypotheses and research questions of the respective studies are outlined below:

3.1 PAPER I

- I. We expected that the TPB components would predict parents' intentions not to smoke indoors in the presence of their children.
- II. In addition, we predicted that moral norms, self-identity as a smoker, parent identity, and positive and negative anticipated affect would make unique contributions to the explained variance in intention, after the effects of the TPB components were accounted for. We also expected there to be an interaction between self-identity \times parent identity, parent identity \times moral norms, and negative anticipated affect \times moral norms in predicting intentions.
- III. Based on the notion that the impact of the TPB components might differ across populations and situations, we examined whether the relationship between the predictors and intention was different for women and men.

3.2 PAPER II

- I. We expected that the TPB would predict students' intentions quit smoking, and that past behaviour, moral norms, self-identity, group-identity, and positive and negative anticipated affect would predict intentions beyond the effect accounted for by the TPB components. We expected there to be an interaction between past behaviour \times self-identity, and negative anticipated affect \times moral norms in predicting intentions.
- II. We predicted that the TPB components, previous quit attempts, moral norms, self-identity, group-identity, and positive and negative affect would predict subsequent behaviour. We predicted that there would be an interaction between PBC \times intention, past behaviour \times intention, past behaviour \times self-identity, negative anticipated affect \times intention, positive anticipated affect \times intentions, and negative anticipated affect \times moral norms in predicting behaviour.
- III. We examined which groups that accounted for the intention-behaviour discrepancy/consistency by dividing the sample into inclined actors, inclined abstainers, disinclined actors and disinclined abstainers. Finally, we tested whether the specified predictors could discriminate between the four groups.

3.3 PAPER III

- I. We expected that the TPB components, past smoking behaviour, group norms, group identification, moral norms, and self-identity would predict adolescents' intentions to reduce smoking. We assumed that there would be an interaction between past behaviour \times self-identity, and group identification \times group norms in relation to intentions.
- II. We predicted that the TPB components, past smoking behaviour, group norms, group identification, moral norms, self-identity, and action planning would predict subsequent behaviour. We expected there to be an interaction between PBC \times intention, past behaviour \times self-identity and group identification \times group norm, but not between past behaviour \times action planning in relation to behaviour.

3.4 PAPER IV

- I. We examined whether the school-based smoking prevention programme BE smokeFREE had an impact on smoking initiation in a prospective sample of adolescents.
- II. We predicted that the TPB components, past behaviour, smoking by parents, siblings and friends, alcohol use, descriptive norm, group identification, moral norms and self-identity would predict adolescents' intentions to refrain from smoking. We expected there to be an interaction between past behaviour \times self-identity, and group identification \times group norm in relation to intention.
- III. We expected that the TPB components would predict subsequent behaviour, and that past behaviour, smoking by parents, siblings and friends, alcohol use, moral norms, descriptive norm, group identification, and self-identity would predict behaviour beyond the impact of the TPB components. We assumed that there would be an interaction between PBC \times intention, past behaviour \times self-identity, and group identification \times group norm in relation to behaviour.

4. MATERIAL AND METHODS

4.1 DATA COLLECTION AND SAMPLES

In order to address the research questions and hypothesis, data from three different studies was applied. The three studies are briefly presented below.

4.1.1 Paper I

This study was conducted in 2001 in a national sample of 1000 households who had children born in 1998. Permission was obtained from the Data Inspection. The parent/person in charge whose birthday came first after the date on which the household received the questionnaire was instructed to answer the questions. This was to ensure that the sample would include as many men as women. Those who did not live with a partner were instructed to fill in the form themselves. A total of 612 respondents; 353 women (M age = 32.17, SD = 4.78) and 259 men (M age = 35.29, SD = 5.05), returned a completed questionnaire. The present study was conducted among the smokers in the sample. In total 101 women (M age = 31.11, SD = 4.96) and 61 men (M age = 35.14, SD = 5.59) reported that they smoked. Measures assessed among the smokers (N = 162) were structured in the following order: attitudes, subjective norms, perceived behavioural control, moral norms, self-identity, parent identity, positive and negative anticipated affective reactions, and behavioural intentions.

In spite of using the birthday criteria to select which of the parents was to answer the questions, women were overrepresented. This is in accordance with previous research (Lund et al., 1998b). One of the reasons is that children live with their mother in 97% of cases where the parents are divorced or separated. The percentage of smokers, which represented 26% of the total sample (27% of the women and 24% of the men), was lower than the percentage of smokers in these age groups in Norway, which is reported to be approximately 30% (Statistics Norway, 2003). However, the figure from Statistics Norway (2003) is based on data from people who have children and people who do not have children. It is reasonable to expect that the number of smokers among those who have children is lower than among those who do not have children. In addition, this discrepancy is unlikely to have any effect on the associations among variables, which is the primary concern of the present study.

4.1.2 Paper II

University students in Norway voluntarily completed questionnaires sent via electronic mail at two time points separated by six months (November 2002 and May 2003). The participants were recruited on the Internet when visiting an online national newspaper (<http://www.vg.no>). Users of computers that were registered at universities in Norway received a pop-up that gave information about the survey. However, only participants who reported smoking on a daily basis, i.e., at least one cigarette a day, were included in the study.

The Time 1 questionnaire was structured in the following way: attitude, subjective norm, PBC, moral norms, self-identity, group identity, and positive/negative anticipated affect and intentions. Behaviour was measured in the Time 2 questionnaire. The participants wrote their e-mail address in the Time 1 questionnaire if they agreed to attend the second survey six months later, and a self-generated individual identity code. In total, 961 respondents completed the Time 1 questionnaire; 344 women (M = 26.18, SD = 8.09) and 617 men (M = 26.20, SD = 8.21). Of those who participated at Time 1, 698 (73%) respondents returned the Time 2 questionnaire, six months later; 245 women (M = 26.68, SD = 7.43) and 453 men (M = 26.77, SD = 7.28). The individuals who participated at both time waves were matched through use of

the self-generated individual identity code. The analyses in the present study are based on data from a prospective sample of 698 participants.

The sampling procedure did not assure representativity of students in Norway who are daily smokers, and hence, no attempt at generalising the findings should be made. The aim of the present study was to study the relationship between variables, not actual levels of smoking related variables.

4.1.3 Paper III and Paper IV

The present study was conducted in November 2000 and November 2001. Questionnaires were sent via standard mail to pupils who were selected by drawing one pupil (born the 6th day in every month) from 9th grade classes (with 15 or more pupils) in Norway. A total of 2210 (response rate = 85%) students ($M = 13.95$, $SD = 0.30$) completed the Time 1 questionnaire. The Time 2 questionnaire was completed by 1669 adolescents (response rate = 76%). Due to inadequate identity codes we were only able to match 913 participants. Nonetheless, the sampling procedure did not assure representativity of adolescents in Norway, and hence, no attempt at generalising the findings should be made. The aim of the papers was to study the relationship between variables, not actual levels of smoking related variables.

Thus, Paper III and Paper IV were based on data from adolescents which completed both questionnaires. All children were in a single school year and were either 13 or 14 (M age = 13.97, $SD = 0.27$) years of age. Questionnaires were anonymously completed in classroom time. Paper III is based on data gathered among the smokers in the sample. The sample contained 174 (19%) smokers. However, due to missing data, 29 participants were excluded from the analysis. Our final sample, on which all analysis in Paper III are reported, consisted of 145 smokers (Time 1). Among the smokers, 51 (35.2%) reported smoking daily, 16 (11.0%) reported smoking 3-5 times a week, 17 (11.7%) reported smoking 1-2 times a week, and 61 (42.1%) reported smoking less than 1-2 times a week. There were 88 (60.7%) girls ($M = 13.95$, $SD = 0.26$) and 57 (39.3%) boys ($M = 13.98$, $SD = 0.30$) among the 145 participants.

Paper IV is based on data gathered among the non-smokers in the sample. The sample contained 739 (81%) non-smokers. However, due to missing data, 17 participants were excluded from the analysis. Our final sample, on which all analysis in Paper IV are reported, consisted of 722 non-smokers (as reported at Time 1). Among the non-smokers, 624 (86.4.2%) reported never smoking while 98 (13.6%) reported having quit smoking. There were 345 (47.8%) girls (M age = 13.88, $SD = 0.37$) and 377 (52.2%) boys (M age = 13.86, $SD = 0.46$) among the 722 participants.

4.2 QUESTIONNAIRES - MEASURES

All papers contained the *TPB measures*: Attitude, subjective norms, PBC, intention, and behaviour. The measures used in the respective papers were based upon standard wording recommended for measuring components of the TPB (Ajzen, 1991).

4.2.1 Paper I

Background variable: Gender.

Extension variables: Moral norms (Manstead, 2000), self-identity as a smoker and self-identity as a parent (Sparks, 2000), positive and negative anticipated affect (Perugini & Bagozzi, 2001; Richard, van der Pligt & de Vries, 1996a, 1996b).

See *Appendix A* for the entire questionnaire (part 2 of the questionnaire includes the measures applied in Paper I), and see Paper I for a detailed description of the various measures in English.

4.2.2 Paper II

Extension variables: Number of previous quit attempts, moral norms (Manstead, 2000), self-identity as a smoker (Sparks, 2000), group identity (Ellemers et al., 1999; Rise & Moan, 2004; Thoits & Virshup, 1997), positive and negative anticipated affect (Perugini & Bagozzi, 2001; Richard et al., 1996a, 1996b).

See *Appendix B* for questionnaires from Time 1 and Time 2, and see Paper II for a detailed description of the items in English.

4.2.3 Paper III

Extension variables: Past smoking behaviour, moral norms (Manstead, 2000), self-identity as a smoker (Sparks, 2000), group norm and group identification (Terry & Hogg, 1996), and action planning (Rise et al., 2003).

See *Appendix C* for questionnaires from Time 1 and Time 2 (the measures used in Paper III are included in Part 1 and 2), and see Paper III for a detailed description of the items in English.

4.2.4 Paper IV

The school-based smoking prevention programme BE smokeFREE: participation or not.

Extension variables: Past smoking behaviour, moral norms (Manstead, 2000), self-identity as a non-smoker (Sparks, 2000), group norm/descriptive norm and group identification (Terry & Hogg, 1996) and perceived social pressure to smoke (Friedman et al., 1985), mother and fathers smoking, best friends smoking, older and younger siblings smoking (Smoking-non-smoking), alcohol use.

See *Appendix C* for questionnaires from Time 1 and Time 2 (the measures used in Paper IV are included in Part 1 and 3), and see Paper IV for a detailed description of the items in English.

4.3 STATISTICAL METHODS

Statistical analyses were conducted by means of SPSS 11.0 for Windows. Analyses of means and standard deviations were applied to report central tendencies and variance. Correlation analysis was used to report bivariate associations.

4.3.1 Principal component analysis

Principal component analysis (PCA)⁹ constitutes one approach to the investigation of underlying structure or basic dimensions in a set of variables. We applied PCA to test whether the items employed to measure the TPB components and the extension variables loaded on distinct factors (see also chapter 4.4.2) in all papers. However, we did not report the results from this analysis in Paper IV (but see Appendix D). One argument favouring the use of PCA

⁹ *Note.* We only reported results of PCA conducted on all items employed to measure the independent variables. The PCA from Paper IV (Appendix D) indicate that moral norm and self-identity loaded on the same factor. However, when a separate analysis was conducted on the moral norm and the self-identity items a two-factor solution was obtained. The items used to measure self-identity loaded on factor 1, while the moral norm items loaded on factor 2. In addition, PCA was also conducted on each scale before entered into the PCA of all the items. As can be seen by the questionnaires, several items were excluded from the scales as a result of these analyses.

concerns the compatibility with previous studies since PCA appears to be the most common approach to factor extraction.

Non-rotated factors are in general of little theoretical interest (Kline, 1994). By rotating the factors, an optimisation of simple structure is obtained. Orthogonal rotation (called varimax rotation in SPSS) is suitable when there are theoretical reasons for considering independent dimensions. We used orthogonal rotation in all four papers.

Although other methods, like the common factor method such as Maximum Likelihood (ML), implies some other advantages (e.g., separation of common and unique variances, higher theoretical potential and significance tests – see Kline, 1994), principal component analysis is found to be adequate when using it in addition with Cronbach's alpha (see chapter 4.4.2 for further details).

4.3.2 Multiple regression analysis

Multiple linear regression analysis quantifies the extent to which a combination of two or more independent variables has a linear relationship with the dependent variable. The regression plane is usually estimated by means of the least-squares method, in which the sum of squares of the distances between observed values and those predicted by the fitted model is minimised (Tabachnick & Fidell, 2001).

One of the basic assumptions in multiple regression analysis is that the dependent variable should be normally distributed at all points along the regression line, i.e., the residuals should be normally distributed. A second basic assumption is that the variance in the residuals should not be associated with the predicted value of the dependent variable, i.e., the residuals should be homoscedastic (Hankins, French & Horne, 2000). We applied Royston's (1982) extension of the Shapiro and Wilk's W statistic to test whether the residuals were normally distributed. A Shapiro-Wilk score which is not significantly different from 1 indicate normality in all papers. We also tested whether the residuals were heteroscedastic, i.e., whether the variance in the residuals were associated with the predicted value, by making a scatterplot of the standardized predicted value of the dependent variable and the standardized residuals. This is seldom done within the framework of the TPB (Hankins et al., 2000), but see Hu and Lanese (1998) for an exception.

Finally, as suggested by Hankins et al. (2000) we used the adjusted R^2 when reporting the explained variance in intention and behaviour because R calculated from a sample tends to overestimate the population value of R and this bias increases as the ratio of independent variables to sample size increases. Adjusted R^2 takes this bias into account. In addition, since we examined the increase in R^2 following the inclusion of several independent variables to the TPB, we chose to use the adjusted R^2 because it controls for the number of variables entered into the regression analysis. Thus, when referring to explained variance, or R^2 , in the remaining part of the manuscript, this actually resembles the adjusted R^2 (exception: results from behavioural prediction in Paper IV, see section 4.3.3).

When *interaction effects* were tested, variables were mean-centred (i.e., the mean of the variable is subtracted from the values) before computing the interaction terms, and only mean-centred variables were employed in the analyses. This was done for two reasons. First, mean centring tends to reduce the correlation between predictor variables and interaction terms and thus minimizes problems of multicollinearity (Aiken & West, 1991). Second, for non-centred data regression, coefficients in equations containing interactions are not invariant under linear transformations of the data (Aiken & West, 1991). Mean centring of the data removes this problem and leads to less problematic interpretation of the data.

Moreover, when an interaction term is significantly related to the dependent variable, this does not tell us anything about the nature of the interaction. Thus, *simple slope analysis* (Aiken & West, 1991) was applied when probing the nature of significant interactions (i.e., in Paper I,

II & III). Simple slope analysis is a method that enables us to examine how the relationship between an independent variable (X) and the dependent variable (Y) varies at different levels of another independent variable (Z). Aiken and West (1991) suggested that a significant interaction should be examined by the regression lines of three levels of the hypothesized moderator (Z), i.e., at the mean level (Z_M) and at 1 SD above (Z_H) and below the mean (Z_L).

Finally, when we tested the *moderating effects of gender* (i.e., Paper I), we compared the unstandardised beta coefficients for women and men as suggested by Baron and Kenny (1986).

4.3.3 Logistic regression analysis

When the dependent variable is qualitative rather than quantitative, e.g., like in Paper IV when participants were either smokers or non-smokers at Time 2, the proper way to predict their behaviour is by using logistic regression analysis (e.g., Skog, 2004). A central concept in logistic regression analysis is *odds ratio*. The odds-ratio is a parameter which indicates how many times larger (or smaller) the odds are when the independent variable increase with one unit. An odds-ratio equal to 1 indicates that the odds do not change as a result of an increase in the independent variable (i.e., no relationship). When the odds-ratio is greater than 1, the odds increase as a function of an increase in the independent variable (i.e., positive relationship). Finally, when the odds-ratio is smaller than 1, the odds decrease as a result of an increase in the independent variable. The most common and intuitive statistical tests used in logistic analysis is the Wald-test (cf. Skog, 2004), a test which is similar to the t -test used in linear regression.

It exist a number of measures used to indicate the amount of the variance explained in the dependent variable in logistic regression (see Skog, 2004, for details). Since we found Nagelkerke's measure R^2_N to be reported in recent publications applying the TPB to study smoking (e.g., McMillan et al., 2005), we chose to use this measure.

Like in linear regression, logistic regression rests on some basic assumptions. One assumption in logistic regression is that the logistic curve gives a correct description of the empirical relationship (cf. Skog, 2004). When testing a model which includes several independent variables, the Hosmer-Lemeshow test can provide a good estimate of the models fit to the data (Skog, 2004). In short, the result from the Hosmer-Lemeshow test tells us whether the discrepancy between model and data is significant or not. The test was applied in Paper IV.

4.3.4 Discriminant function analysis

The goal of discriminant function analysis is to predict group membership from a set of predictors. This technique is a useful way to find the characteristics that best define differences across groups.

The analysis produces discriminant functions where the first function provides the best separation among groups. Then a second discriminant function, orthogonal to the first, is found that best separates groups on the basis of associations not used in the first discriminant function. This procedure of finding successive orthogonal discriminant functions continues until all possible dimensions are evaluated (Tabachnick & Fidell, 2001). The number of possible dimensions is either one fewer than the number of groups or equal to the number of predictor variables, whichever is smaller. Typically, only the first one or two discriminant functions reliably discriminate among groups; remaining functions provide no additional information about group membership and are better ignored (Tabachnick & Fidell, 2001).

Discriminant analysis was applied in Paper II to examine which of the specified predictors that best discriminated between four groups: *inclined actors*, *inclined abstainers*, *disinclined actors* and *disinclined abstainers*.

4.4 METHODOLOGICAL ISSUES

4.4.1 Variables

Detailed descriptions of all variables applied in this thesis are provided in the respective papers and will not be repeated here. Rather, the focus will be on more general methodological aspects of the papers.

4.4.2 Reliability

Reliability refers to the degree of accuracy and stability of a measuring instrument (e.g., Kerlinger & Lee, 2000). In all papers included in the thesis the mean scores of indices were constructed. By index construction random errors of single items are to some extent removed, and more reliable measures are obtained (e.g., Kerlinger & Lee, 2000). The most commonly used measure of reliability (internal consistency) is *coefficient alpha* (Cronbach, 1951). Cronbach's alpha represents the mean of the correlations between all of the different possible splits of the scale into two halves. However, Cronbach's alpha is only useful for estimating reliability in a particular case: when item-specific variance in a unidimensional test is of interests (Cortina, 1993). In fact, an index can obtain high alpha-scores even in the case that two or more seemingly independent dimensions are measured. This is usually explained by the fact that Cronbach's alpha is particularly sensitive to the number of items included in a scale. For example, if a scale has enough items (i.e., more than 20), then it can have an alpha of greater than .70 even when the correlation among the items is very small (Cortina, 1993). The number of items applied to measure the constructs in the papers varied from 2-9. Thus, the number of items should not constitute a threat to the reliability in the respective papers.

Nevertheless, as indicated above, it is crucial using factor analysis when determining the internal reliability of an index. Principal component analysis (PCA) was applied in all papers to test whether the indices that were designed to measure the various constructs could be regarded as distinct factors (see section 4.3.1). When PCA suggests the existence of only one factor, then alpha can be used as a confirmatory measure of unidimensionality or as a measure of strength of the given dimension. Thus, PCA alone does not provide enough evidence to conclude that a set of items is unidimensional because such an analysis may, for example, yield only one factor even if the items have correlations of .10 with each other (Cortina, 1993). The Cronbach's alpha, as reported in all papers, were generally higher than 0.70 indicating a satisfactory level of internal consistency (cf., Nunnally, 1978).

4.4.3 Validity

A measure, test or scale is said to be valid if it measures what it claims to measure (Kline, 1993). However, a measure may be more valid in some circumstances than in others, which reflects the existence of different forms of validity (cf. Kline, 1993). Kline (1993) made a distinction between content, criterion-related and construct validity. However, according to Kerlinger (1986), any type of validation may be conceived of as construct validation. Construct validity refers to the link between empirical or psychometric and theoretical properties of a measure and thus concerns the substantial meaning of a certain measure. Basic to the establishment of construct validity are the notions of convergence of different sources or methods, and discriminability with regard to other constructs (e.g., Cook & Campbell, 1979). As recognised by Kerlinger (1986) factor analysis is a powerful method of construct validation. In this thesis, PCA been applied extensively to establish the discriminant and convergent validity of the independents variables assessed in the respective studies. Thus, it is assumed

that some evidence of construct validity has been provided with regard to the measures used in the present studies.

4.4.4 External validity

External validity refers to the extent to which findings can be generalised from the sample to a broader population (Cook & Campbell, 1979). However, as the sampling procedure in the respective studies did not assure representativity of e.g., students who were daily smokers (cf. Paper II) or adolescents who were non-smokers (cf. Paper IV) – they are assumed to be selected populations in the first place – no attempt at generalising these findings should be made. The aim of the respective papers was to study relationships between variables, not levels of smoking related variables. According to Aaberge and Laake (1984), generalisations of relationships are less vulnerable to sample effects than are generalisations of prevalence. Thus, as the respective papers focus on psychological mechanisms and processes, indicated by bivariate and multivariate relations, there is reason to expect that the relationships identified in e.g., Paper I can be found among other parents of children (born in 1998) in Norway who smoke. However, as suggested by Ajzen (1991) the impact of the TPB components might differ across populations and situations, and thus, some mechanisms might be operating specifically in adolescents while other mechanisms might be more vital among adults. Thus, replication of the findings in different samples would be highly recommended, both in order to further validate the findings and in order to test the notion that intentions and behaviours are guided by different psychological processes across age groups. Further insight in the latter issue might also provide useful information regarding preventive efforts against tobacco use.

4.4.5 Potential limitations of the studies

A number of potential methodological problems with the respective studies should be noted. *First*, all studies relied on self-report measures. Mono-method bias might be a potential threat to construct validity of the studies. When all operationalizations use the same method (i.e., self-report), that method is part of the construct actually studied. Results from a meta-analysis (Armitage & Conner, 2001) showed that the TPB account for a relatively large amount of the variance both of observed ($R^2 = .20$) and self-reported behaviour ($R^2 = .31$). Correspondingly, Conner et al. (in press) found that the TPB components accounted for more variance in self-reported smoking behaviour among adolescents than in objective measures of smoking. Nevertheless, self-reports of adolescents smoking have been shown to be reliable and in agreement with biomedical indicators when measurements are carried out under optimum measurement conditions, like in Paper III and Paper IV where strict confidentiality was assured (e.g., Dolcini, Adler & Ginsberg, 1996). *Second*, all papers applied structured questionnaires as recommended by Ajzen and Fishbein (1980) under the assumption that individuals possess a relatively stable set of mental representations. Some studies have indicated that responses vary as a function of the format of the questionnaire (e.g., Budd, 1987; Sheeran & Orbell, 1996), while others (Armitage and Conner, 1999b) have not confirmed this finding. On the other hand, of more relevance for the present studies, Armitage and Conner (1999b) found that response format did not moderate the relations between the theoretical components, but affected the pattern of predictions. However, it is not possible to say whether this may have been a problem in these studies. A *third* potential threat to the reliability and validity of the TPB measures is social desirability. Sheeran and Orbell (1996) found some effect of social desirability on the reliability of the measures, and the correlations between the components in the protection motivation theory, while Beck and Ajzen (1991) and Armitage and Conner (1999b) could not confirm this finding in their studies of dishonest behaviour and food choice. Armitage and Conner (1999b) therefore suggested that Sheeran and Orbell's (1996) findings

were artifactual. In conclusion self-report through questionnaires can not be viewed as a neutral method for data collection, but neither can experiments nor any other psychological method (see Cook & Campbell, 1979).

5. RESULTS

The results of Paper I-IV are presented in the following sections.

5.1 PAPER I: Predicting parents' intentions not to smoke indoors in the presence of their children using an extended version of the theory of planned behaviour

This study examined whether the TPB could predict parents' intentions not to smoke indoors in the presence of their children. Moral norms, self-identity as a smoker, identity as a parent, and positive and negative anticipated affect were included as additional predictors.

A hierarchical multiple regression analysis was applied to predict intentions. The first step of the analysis showed that intentions were predicted by subjective norms ($\beta = .37, p < .001$) and PBC ($\beta = .54, p < .001$). Attitudes failed to predict intentions ($\beta = -.06, ns$). The TPB components accounted for 56 per cent of the variance in intention. The impact of subjective norms and PBC retained significant after the extension variables were entered into the regression analysis.

Moreover, the data were supportive of the inclusion of self-identity as a smoker ($\beta = -.11, p < .01$) and moral norms ($\beta = .32, p < .001$) in the TPB. We also found a significant interaction effect between parent identity and self-identity ($\beta = .12, p < .01$), and between negative anticipated affect and moral norms ($\beta = -.19, p < .001$). Simple slope analysis demonstrated that the effect of self-identity decreased when parent identity increased from low to high. Furthermore, simple slope analysis revealed that when negative anticipated affect increased from low to high, the impact of moral norms decreased. The additional variables explained 19% of the variance in intention, beyond the effect of the TPB components. This extended TPB model accounted for 75% of the variance in intentions.

Finally, we identified significant interactions between gender and three of the predictors of behavioural intentions. PBC was more strongly related to intentions for women than men ($p < .05$), parent identity and intention were stronger related among men than among women ($p < .05$), and positive anticipated affect and intention were stronger related among women than among men ($p < .05$).

5.2 PAPER II: Quitting smoking: Applying an extended version of the theory of planned behavior to predict intention and behavior

This study examined the ability of the TPB, past behaviour, moral norms, self-identity, group identity, and positive and negative anticipated affect to predict students' intentions to quit smoking and the subsequent making of a quitting attempt 6 months later. The consistency of the intention-behaviour relationship was examined by dividing the sample in four subgroups: inclined actors/abstainers and disinclined actors/abstainers. Discriminant analysis was used to identify which variables that best discriminated between the groups.

The TPB components explained 36% of the variance in students' intentions to quit smoking. Attitude ($\beta = .51, p < .001$) was the strongest predictor of intention followed by PBC ($\beta = .20, p < .001$) and subjective norm ($\beta = .14, p < .001$). The impact of attitude and PBC remained significant after the extension variables were entered into the regression. In addition, moral norms ($\beta = .08, p < .01$), positive anticipated affect ($\beta = .12, p < .001$), group identity (β

= .22, $p < .001$), and past behaviour ($\beta = .09$, $p < .01$) contributed with an additional 9% of the explained variance in intentions, after the effect of the TPB components had been accounted for. This extended TPB model accounted for 45% of the variance in intentions.

Hierarchical multiple regression was applied to predict behaviour. The first step showed that behavioural intentions ($\beta = .34$, $p < .001$) were able to account for 12% of the variance in subsequent behaviour, while PBC ($\beta = -.01$, ns) failed to predict behaviour. Intentions remained the strongest predictor of behaviour after the extension variables were included in the analysis. In addition, past behaviour ($\beta = .16$, $p < .001$), moral norms ($\beta = .10$, $p < .01$) and self-identity ($\beta = -.08$, $p < .05$) predicted behaviour, beyond the effect accounted for by the TPB components. Two significant interactions were identified: intention \times past behaviour ($\beta = -.17$, $p < .001$), and moral norms \times negative anticipated affect ($\beta = -.09$, $p < .01$). Simple slope analysis showed that when past behaviour increased from low, through moderate, to high, intentions became a weaker predictor of behaviour. Moreover, when negative anticipated affect increased from low, through moderate, to high, the predictive power of moral norms decreased. A total of 21% of the variance in behaviour was accounted for by this extended TPB model.

Finally, inclined abstainers constituted the main source of the discrepancy between intention and behaviour. In total 67% of participants with strong intentions to quit smoking failed to do so. In addition, 16% of the participants quit smoking in spite of their lacking intention to do so at Time 1. The discriminant analysis enabled us to distinguish between the inclined and disinclined groups, but not between the inclined actors and abstainers, and the disinclined actors and abstainers. Attitude, group identity and positive anticipated affect dominated the discriminant function.

5.3 PAPER III: Predicting smoking reduction among adolescents using an extended version of the theory of planned behaviour

This study tested the ability of the TPB to predict adolescents' intentions to reduce smoking and the subsequent behaviour one year later. Past behaviour, moral norms, self-identity as a smoker, group identification, group norm and action planning were included as additional predictors.

A hierarchical multiple regression analysis was performed to examine the impact of the extended TPB model on intentions. The TPB components explained 28% of the variance in intentions. Subjective norm ($\beta = .33$, $p < .001$) was the strongest predictor of intention, followed by PBC ($\beta = .30$, $p < .001$) and attitude ($\beta = .16$, $p < .05$). The impact of subjective norm and PBC retained significant after the extension variables were entered into the regression analysis.

In addition, the study supported the inclusion of self-identity as a smoker ($\beta = -.21$, $p < .05$) and moral norms ($\beta = .29$, $p < .001$), which added another 9% to the explained variance in intentions. Also, the group identification \times group norm interaction ($\beta = .15$, $p < .01$) was significant adding further 1% of the explained variance in intentions. Simple slope analysis revealed that the positive effect of group norm was stronger for those who identified strongly with the reference group. This extended TPB model accounted for 38% of the variance in intentions.

A hierarchical multiple regression analysis was applied to predict behaviour. The first step of the analysis showed that the TPB failed to predict behaviour. However, in the second step past behaviour ($\beta = .30$, $p < .001$), action planning ($\beta = .17$, $p < .05$), and self-identity ($\beta = -.21$, $p < .05$) appeared as significant predictors of smoking reduction. The final step showed that past behaviour ($\beta = .26$, $p < .001$) and self-identity ($\beta = -.23$, $p < .05$) were significantly related to behaviour, while the impact of action planning was marginally significant ($\beta = .14$, $p = .08$). Finally, the PBC \times intention interaction was significant ($\beta = -.17$, $p < .05$). Simple slope analysis showed that the intention-behaviour relationship was stronger for participants who

perceived having a high degree of control over reducing smoking. This extended TPB model accounted for 24% of the variance in behaviour.

5.4 PAPER IV: Predicting smoking initiation among adolescents using social influence factors and an extended theory of planned behaviour

This study examined the impact of an extended version of the TPB on adolescents' intentions to refrain from smoking and the subsequent behaviour one year later. In addition, the impact of the school-based smoking prevention programme BE smokeFREE (BSF) was examined.

A hierarchical multiple regression analysis showed that the intention to refrain from smoking was predicted by subjective norms and PBC ($R^2 = 0.13$). Attitude failed to predict intentions ($\beta = .03$, ns). PBC ($\beta = .32$, $p < .001$) was stronger related to intentions than subjective norms ($\beta = .13$, $p < .001$). Both PBC and subjective norms remained significantly related to intention when the extension variables were entered into the regression analysis. In addition, moral norms ($\beta = .18$, $p < .001$), self-identity ($\beta = .18$, $p < .001$), descriptive norm ($\beta = .09$, $p < .01$), group identification ($\beta = .10$, $p < .001$), and perceived social pressure ($\beta = -.07$, $p < .05$) accounted for 13% of the variance in intentions, beyond the effect accounted for by the TPB components.

Logistic regression analysis showed that participants more likely remained smoke free if they participated in BSF ($p < .05$). However, when the additional predictors were included in the analysis, the impact of BSF became non-significant. Multiple logistic regression analysis showed that intention and PBC significantly predicted behaviour at Time 2 ($R^2_N = .05$). The odds ratio of 1.27 and 1.40 for intention and PBC, respectively, indicate that a high score on both variables increased the likelihood of remaining a non-smoker. When the extension variables were entered into the model, the impact of PBC remained significant, while the impact of intention became marginally significant. Past behaviour, perceived social pressure, fathers smoking, older siblings smoking, and alcohol use predicted behaviour, beyond the effect accounted for by the TPB components. The odds ratio of 4.49 for past behaviour shows that those who reported never smoking at Time 1 were over four times more likely to remain smoke free at Time 2. Moreover, the odds ratio of 0.51 and 0.45 for perceived fathers' and older siblings' smoking, respectively, show that having a father or an older sibling who smokes increased the likelihood of taking up smoking at Time 2. The odds ratio of 1.44 for alcohol use shows that alcohol use at Time 1 increased the likelihood of becoming a smoker at Time 2. Finally, the odds ratio of 0.83 for perceived social pressure shows that participants who reported being exposed to social pressure to smoke at Time 1, more likely were smokers at Time 2. This extended TPB model correctly classified 86.3% of the participants into smokers and non-smokers ($R^2_N = .24$).

6. DISCUSSION

First, the results in this thesis will be discussed shortly in light of the research hypothesis outlined above, i.e., mainly in light of two aspects: (i) to what extent was the TPB able to predict intentions and behaviours, and (ii) to what extent did the extension variables contribute in the prediction of intentions and behaviours, beyond the impact accounted for by the TPB components. The results will be discussed in light of previous findings (see Chapter 7.1). Second, some theoretical implications of the findings will be addressed. In addition, some research questions that may be interesting to address in future research will be proposed (see Chapter 7.2). Finally, a number of practical implications of the results will be suggested (see Chapter 7.3).

6.1 EXTENDING THE TPB IN THE DOMAIN OF SMOKING

6.1.1 Parents' intentions not to expose their children to ETS

To our knowledge *Paper I* represent the first study to date employing the TPB to explore the motivational processes underlying parents' intentions not to smoke indoors in the presence of their children. The TPB components accounted for 56% of the variance in intention, which is a high proportion of the variance compared to results from meta-analysis of the TPB (cf. Armitage & Conner, 2001; Sheeran, 2002), results from other studies predicting intentions in the domain of smoking (cf. Table I), and according to Cohen (1988) who suggested that 25% represents a large effect size. Thus, the study suggests that the TPB might be a useful framework in future research addressing this issue.

Moreover, the results from *Paper I* confirmed empirically a number of issues which have received scant attention in the literature hitherto: the behavioural implications of two distinct components of identity, smoker identity and parent identity; a distinction between positive and negative anticipated affect using principal component analysis and their independent prediction of behavioural intentions; significant interactions between parent identity and smoker identity, and negative anticipated affect and moral norms; and significant interactions between gender and three predictors of behavioural intentions. The implications of these findings will be addressed below. The extension variables, including moral norm, added 19% to the explained variance in intention, after the TPB components had been accounted for. According to Cohen's (1988) classification 9% represents a medium effect size, and accordingly this must be regarded as a sizeable contribution.

6.1.2 Smoking cessation among students

The results from *Paper II* showed that attitude, subjective norms and PBC accounted for 36% of the variance in students' intentions to quit smoking, a figure which corresponds with previous research addressing quitting intentions (Falomir & Invernizzi, 1999; Hu & Lanese, 1998; Norman et al., 1999; Willemsen et al., 1996). This figure also corroborate with results from meta-analysis of the TPB (cf. Armitage & Conner, 2001). Moreover, 36% represents a large effect size. The relative impact of the TPB components varied across studies. These inconsistent findings might be related to characteristics of the sample (Ajzen, 1991). For instance, the opinion of valued others might be more influential on adolescents decision making (cf. Falomir & Invernizzi, 1999) than older individuals (cf. Willemsen et al., 1996). Moreover, the longer an individual has been smoking, the more important perceptions of control might be for his/her motivation to quit smoking (cf. Hu & Lanese, 1998; Norman et al., 1999). However, this is an empirical issue which needs to be addressed in future research.

In addition, *Paper II* supported the inclusion of moral norm, group identity, positive anticipated affect and past behaviour in predicting students' intentions to quit smoking, beyond the effect accounted for by the TPB components. These components added 9% to the explained variance in intentions, i.e., an increase representing a medium effect size. The impact of past behaviour, beyond the impact of the TPB components, has been demonstrated in previous studies addressing quitting intentions (cf. Falomir & Invernizzi, 1999; Hu & Lanese, 1998; Willemsen et al., 1996). *Paper II* extends previous research by demonstrating that moral norms, group identity and positive anticipated affective reactions also might be important motivational sources when people consider quitting smoking.

The results from *Paper II* add to the findings of previous research in that intentions and past behaviour was significant predictors of subsequent smoking cessation (cf. Norman et al., 1999;

but see Johnston et al., 2004¹⁰). However, while Norman et al. (1999) found that previous quit attempts was the strongest predictor of smoking cessation 6 months later, the results from Paper II showed that intention remained the strongest predictor of behaviour (after 6 months), also after past behaviour and the other extension variables were entered into the model. Behavioural intentions accounted for 12% of the explained variance in subsequent behaviour, a figure which represents a medium effect size. The results from Paper II extend previous research in several respects. The results showed that subsequent smoking cessation also was predicted by moral norms, self-identity, and the interactions between past behaviour and intention, and between negative anticipated affect and moral norm. The interpretation of these interaction effects and the implications of these findings are discussed below. The extension variables added 9% above the variance accounted for by the TPB, i.e., an increase representing a medium effect size. Inclined abstainers constituted the main source of the intention-behaviour discrepancy, a finding which is in accord with the results from studies conducted on other health related behaviours (cf. Orbell, 2004). Finally, the results from the discriminant analysis showed that the specified predictors only were able to discriminate between participants who where inclined to quit and those who were not. This also corroborate with previous findings (Orbell, 2004; Sheeran, 2002).

6.1.3 Smoking reduction among adolescents

Paper III showed that attitude, subjective norms and PBC accounted for 28% (adj. R^2) of the variance in adolescents' intentions to reduce smoking, i.e., a large effect size. We were not able to identify any study which has addressed adolescents' intentions to reduce smoking using the TPB. However, the results are consistent with the results from a study concerning adolescents' intentions to quit smoking (cf. Falomir & Invernizzi, 1999). Thus, Paper III suggests that the TPB do provide a useful framework when studying adolescents' motivation to reduce/quit their smoking.

Falomir and Invernizzi (1999) found that self-identity predicted adolescents' intentions to quit smoking. Paper III demonstrated that self-identity also was an important motivational force in relation to adolescents' intentions to reduce smoking, along with moral norms, and the interaction between group identification and group norm. The extension variables explained 10% (adj. R^2) of the variance in adolescents' intentions to reduce smoking, after the impact of the TPB components had been accounted for. This improvement represents a medium effect size.

We could not identify any studies which have applied the TPB to predict subsequent smoking reduction/cessation among adolescents. In Paper III both intention and PBC failed to predict smoking reduction directly. Nonetheless, the interaction between PBC and intention was significantly related to behaviour, accounting for 1% of the variance in behaviour (i.e., a small effect size). Simple slope analysis supported the assumption of Ajzen (1991), i.e., that in relation to behaviours that are not under complete volitional control, PBC should moderate the intention-behaviour relationship so that a high degree of perceived behavioural control would result in a stronger intention-behaviour relationship. In addition, past behaviour, self-identity, and action planning had a significant impact on subsequent smoking reduction one year later. The extension variables explained 23% of the variance in smoking reduction, beyond the effect accounted for by the TPB components. Thus, the improvement represented a medium-to-large effect size.

¹⁰ Johnston et al., 2004 only tested the impact of the TPB components.

6.1.4 BE smokeFREE

The results from Paper IV showed that BSF had a significant impact on smoking initiation, i.e., fewer of those who participated in the programme started to smoke compared to adolescents who were in the control group. Nevertheless, when the other predictors were entered into the regression analysis, the impact of BSF became non-significant. Thus, the differences between the two groups can not be ascribed the program. In light of a recent qualitative study, which showed that teachers had cut down the number of hours used on the BSF program to far less than recommended (Hetland & Aarø, 2005), this finding is not surprising. In addition, the program was based on the social influence model and recent evidence indicates that school-based interventions based on this model might not be as effective as assumed earlier (e.g., Peterson et al., 2000; Thomas, 2002; Wiehe et al., 2005). Particularly, the support for long-term effectiveness seem to be lacking (Wiehe et al., 2005). One plausible explanation of the weak impact of smoking interventions is that theory rarely has been applied to the development and/or evaluation of interventions (cf. Hardeman et al., 2002; Michie & Abraham, 2004). In addition, although the point of departure for the BSF is the social influence model, it is unclear which specific social influence factors that are actually are targeted. Thus, some possible strategies on how to improve the efficacy of smoker interventions will be outlined below (see section 6.4.1).

6.1.5 Smoking initiation among adolescents

The results from *Paper IV* showed that subjective norms and PBC accounted for 13% of the variance in adolescents' intentions to refrain from smoking, while attitude failed to predict intention. Thus, in terms of explained variance, the TPB performed better in the study of Conner et al. (in press) than in our study. However, Godin et al. (1992) found no significant impact of the TPB components on non-smoking adults' intentions to refrain from smoking (2 studies). As noted above, the weak impact of the TPB components in Paper IV can be related to the fact that non-smokers have thought less about smoking than smokers. However, this is an empirical issue which needs to be explored in future research. Nevertheless, the fact that PBC appeared as the strongest predictor of intentions is in accord with the findings of Conner et al. (in press, study 1). Moreover, Paper IV showed that moral norms, self-identity, descriptive norm, group identification and perceived social pressure accounted for 13% of the variance in adolescents' intentions to refrain from smoking, beyond the effect accounted for by the TPB components (i.e., an increase representing a medium effect size). Thus, Paper IV extends the study of Conner et al. (in press; see also Godin et al., 1992) by demonstrating that a number of social influence variables also predict adolescents' intentions to refrain from smoking, beyond the effect accounted for by the TPB components.

Both intention and PBC appeared as significant predictors of smoking initiation one year later. However, the effect sizes were small. One study has previously applied the TPB to study smoking among a sample of non-smoking adolescents (Time 1), i.e., Conner et al. (in press). In accord with the results from their study, Paper IV showed that PBC was the strongest predictor of Time 2 behaviour. Moreover, consistent with the findings of Conner et al. (in press), the results in Paper IV revealed that the impact of intention became marginally significant when the other predictors were included in the analysis. In addition, past behaviour, perceived social pressure to smoke, fathers smoking, older siblings smoking, and alcohol use predicted behaviour after one year, beyond the effect accounted for by the TPB components. This extended TPB model accounted for 24%, which represents an improvement of 19% beyond the TPB components. Conner et al. (in press) did not assess any of these extension variables in their study. However, previous studies addressing smoking initiation have identified past smoking behaviour (e.g., Engels et al., 1999), smoking by family members (e.g., Friestad &

Klepp, 1997), perceived social pressure to smoke (de Vries et al., 1995) and alcohol use (e.g., Jackson, Sher, Cooper & Wood, 2002) as important predictors of smoking onset. Nevertheless, no studies seem to have tested the impact of these variables simultaneously.

In sum, the results from the four studies included in this thesis showed that the TPB components accounted for 13-56% of the variance in intention. Thus, in terms of explained variance, the results correspond with previous research and suggest that the TPB is a useful framework when studying intentions to quit and refrain from smoking. Nevertheless, the respective papers showed that the TPB did benefit from being extended with additional predictors. The extended models accounted for 9-19% of the variance in intention, beyond the effect accounted for by the TPB components, an improvement representing a medium-to-large effect size. While the TPB succeeded in terms of predicting intentions, it was less successful in predicting subsequent behaviour. The TPB components accounted for 1-12% of the variance, i.e., small-to-medium effect size. This figure is lower than results from a meta-analysis of the TPB (cf. Armitage & Conner, 2001; Sheeran, 2002), while it is in accord with the findings of McMillan and Conner (2003). Nevertheless, the extended models accounted for 9-23% of the variance in behaviour, beyond the effect accounted for by the TPB components. This improvement represents a medium-to-large effect size.

6.2 THEORETICAL IMPLICATIONS AND FUTURE RESEARCH

6.2.1 Cognition and emotion

The results in Table I revealed that attitudes usually are consistent and relatively strong predictors of intentions in the context of smoking. However, two of the studies included in this thesis found no significant impact of attitudes on intentions (Paper I & IV) and in one study attitude was the weakest predictor of intentions (Paper III). This may be explained by the fact that the impact of the TPB components differ across populations and situations (cf. Ajzen, 1991), and that the impact of attitudes on intentions is greater in domain-general studies than in the domain of health (cf. Trafimow & Finlay, 1996). Several other factors might also explain the weak impact of attitudes on intentions in this context, e.g., attitudinal ambivalence (Ajzen, 2001; Ajzen & Fishbein, in press; Conner, Povey Sparks, James, & Shepherd, 2003), attitude strength (see Ajzen, 2001, Ajzen & Fishbein, in press; for reviews) and temporal stability (see Ajzen, 2005, for review). However, we were not able to test these notions empirically.

The TPB essentially view the individual as a rational decision-maker, a homo economicus (e.g., Richard et al., 1995). Generally, the TPB emphasize cognitive appraisal processes focusing on the likelihood and evaluation of the consequences of health-related behavioural practices. Thus, as suggested by Richard and co-workers (e.g., Richard et al., 1995, 1996a; 1996b), the role of emotions have been neglected within this framework. In accord with this reasoning, the results in Paper I and Paper II point to the importance of emotions in decision processes. The impact of anticipated regret, beyond the effect of the TPB components, has been supported in relation to adolescents' intentions to refrain from smoking (Conner et al., in press) and adolescents' intentions to smoke (McMillan et al., 2005), and a range of other behavioural domains (e.g., Abraham & Sheeran, 2003; Abraham & Sheeran, 2004; Conner & Flesch, 2001; Parker et al., 1995; Richard et al., 1995, 1996a, b; Richard et al., 1998; Sheeran & Orbell, 1999; van der Pligt, & de Vries, 1998).

Nevertheless, the results in this thesis extends previous TPB research by demonstrating that both *negative and positive anticipated emotions* influence students' intentions to quit smoking (Paper II) and parents' intentions not to expose their children to ETS (Paper I). Consequently, people might be motivated both by positive and negative anticipated feelings about having performed a behaviour. Thus, the idea presented by Perugini and Bagozzi (2001), i.e., that positive and negative anticipated affect operate as distinct processes in predicting goal-directed

behaviour, also applies to the prediction of specific behaviours in the context of the TPB. This point was illustrated both by means of principal component analysis and the independent prediction of intentions in both papers.

In addition, the results emphasize the importance of studying moderating effects. Both the results in Paper I and Paper II supported the interaction between negative anticipated affect and moral norms. Manstead (2000) hypothesised that a strong moral conviction could elicit negative affective reactions if the individual did not act according to his/her moral conviction. However, this assumption is only related to the level of the variables, i.e., a high score on moral norms might lead to a high score on negative affect. Thus, he did not address how different levels of moral norms would influence the relationship between negative affect and intentions (and vice versa). We used simple slope analysis to test the nature of the significant interactions. The results from Paper I showed that if parents' had a strong anticipation that they would feel regret, guilt etc. after smoking indoors in the presence of their children, the impact of moral norm on intentions was not so strong. On the other hand, when the anticipation of negative affect was low or moderate, moral norms became more important for the motivation not to smoke in the presence of the children. One possible interpretation of these findings is that *one* of these mechanisms is sufficient (along with the other significant predictors) to motivate parents' not to smoke indoors with their children present. In Paper II, the negative anticipated affect \times moral norm interaction was significantly related to subsequent quitting. Simple slope analysis gave the same results as in Paper I, i.e., if students' had a strong anticipation that they would feel regret, guilt etc. if not quitting smoking, the impact of moral norm on behaviour was not so strong. Again, the results indicate that one of the mechanisms is sufficient. Moreover, while the direct impact of positive anticipated affect was significant in predicting students' intentions to quit smoking, Paper II revealed the positive affect-intention relation only was significant for the women in the sample. These findings imply that it is more likely that women who anticipate having a low degree of positive feelings after smoking indoors in the presence of their children intend not to smoke than men who anticipate the same degree of positive affective reactions. One may speculate that men's perception of positive anticipated affect was a weaker predictor of intentions not to smoke indoors in the presence of their children, simply because it was too weak to predict intention. Thus men's scores on this variable were less extreme than those of women, and extremity may be an indicator of the strength of a measure (see Eagly & Chaiken, 1998).

However, further research needs to be conducted to obtain a deeper understanding of the workings of anticipated affect. Some interesting questions for future research might be: (i) can positive and negative anticipated reactions be regarded as distinct processes in relation to other specific behaviours, e.g., alcohol use, drug use, gambling?, (ii) what is the relative impact of anticipated affect (positive and negative) and cognitions (attitudes) across behaviours?, (iii) are some people more guided by anticipated affect than attitudes and vice versa¹¹, and finally, (iv) how do anticipated affect operate in relation to other psychological processes (e.g., moral norms)?

6.2.2 Normative influence and smoking

Subjective norms are generally found to be a weak predictor of intentions in the context of smoking (see Table I). Armitage and Conner (2001) found that the predictive power of

¹¹ Note that Trafimow, Sheeran, Lombardo, Finlay, Brown and Armitage (2004) tested the relative contribution of affect (but not *anticipated* affect) and cognition across a wide range of behaviours, including smoking. Generally, affect was stronger related to behaviour than cognitions. However, within-participants analysis revealed that there were strong individual differences among people, i.e., some were under affective control across behaviours whereas others were more under cognitive control.

subjective norms significantly improved when using multiple items. Studies conducted to predict intentions in the domain of smoking do suggest the same (see Table I). The four studies presented here all relied on multiple items when assessing subjective norm. This may explain why subjective norms consistently predicted smoking intentions in these papers. Nonetheless, the impact of subjective norm was relatively weak in two of the studies (i.e., Paper II & Paper IV). Trafimow and Finlay (1996) found that the impact of subjective norms depended on the degree to which participants were attitudinally 'controlled' or normatively 'controlled', and that subjective norms were stronger related to intentions in the latter case. Although this explanation might apply to e.g., Paper II, we did not test this notion in this study. Another possible interpretation of the weak subjective norm-intention relation, which has not been addressed in TPB literature hitherto is (i) whether the perception of approval/disapproval of a behaviour is consistent across significant others, e.g., parents and friends, and (ii) whether this consistency/inconsistency might affect the predictive utility of subjective norms. The case of smoking among adolescents might give an illustration of our point.

One obvious possibility in this context is that parents dislike the smoking of their children and tell them to stop/not to start, while peers might indirectly or directly encourage smoking. Thus, when measuring subjective norms by referring to "people that are important to you..." it should be clear who these significant others are. Assessing normative beliefs will be of some help in this context since they tap the approval/disapproval from specific people, e.g., friends and parents. Thus, a possibility is to test whether the level of perceived approval/disapproval from friends and parents differ, and further to test whether this difference affects the correlation between normative beliefs and subjective norms, and normative beliefs and intention. Data from Paper III allowed such an analysis. The results revealed that adolescents who smoke perceived that their parents wanted them to smoke less ($M = 6.14$) more so than their friends ($M = 4.67$) (completely disagree [1] – completely agree [7]). Moreover, the item tapping perceived approval/disapproval of their friends was stronger correlated with the global measure of subjective norms ($r = .43$) and intention ($r = .27$) than the item used to tap the perceived approval/ disapproval of their parents ($r = .27$ and $r = .19$, respectively). They were also more motivated to comply with their friends than with their parents ($M = 5.24$ and $M = 4.73$, respectively). Although these findings do not illustrate how conflicting beliefs affect the predictive utility of subjective norms, they do demonstrate that the relationship between normative beliefs and subjective norms, and normative beliefs and intentions may be influenced by different levels of approval/disapproval. One solution to the problem might be to ask participants who are "significant" to them and further to ask if they believe that the people who are important to them agree or disagree about the matter in question. The latter measure might be a potential moderator of the subjective norm-intention relationship. However, this point might be more relevant for some behaviours (e.g., smoking, alcohol and drug use) and groups (e.g., adolescents) than others. This is an empirical question and should be addressed in future research.

A related issue was tested by Rhodes, Plotnikoff and Spence (2004). They demonstrated that items of beliefs-based scales of self-efficacy were multidimensional and that the correlated belief structure (i.e., beliefs used as multidimensional independent predictors or as a formative scale) fit the observed data better and explained more variance in vigorous physical activity (an additional 6-7%) than aggregated scales (i.e., reflective scale). Thus, the study of Rhodes et al. (2004) showed that the influence of underlying beliefs was obscured by the practice of aggregation. Thus, it might be useful for future research to explore whether this issue also is relevant in relation to normative beliefs.

Another point of departure is the notion presented by Terry and Hogg (1996), i.e., that the concept of subjective norms in the TPB is too narrow to capture all aspects of normative influence. Cialdini et al. (1990) suggested that normative influence could be captured by three

distinct components: injunctive norms (i.e., subjective norms), descriptive norms and moral norms.

The impact of *moral norm*, beyond the impact accounted for by the TPB components, has been supported in relation to adolescents' intentions to smoke (cf. McMillan et al., 2005). The results in this thesis show that moral considerations also are important predictors of parents' intentions not to expose their children to ETS (cf. Paper I), students' intentions to quit smoking (cf. Paper II), adolescents' intentions to reduce smoking (cf. Paper III), and adolescents' intentions to refrain from smoking. The moral norm-intention relationship in the respective studies (average $r = .44$) represents medium-to-large effect sizes. If we compare these results with the attitude-intention correlations (average $r = .27$) and the subjective norm-intention correlations (average $r = .35$) in the respective studies, we find that the moral norm-intention relation generally is stronger. Thus, moral norm is evidently an important motivational source in relation to smoking cessation and smoking initiation. In relation to the TPB, the implication of this finding is that moral norm is a source of motivation needless of much deliberation about the costs and benefits of the particular behaviour and the actions or opinions of valued others (cf. Manstead, 2000). Moreover, moral norm is assumed to be an expression of the core self more so than is attitude since the former refers to the person's personal standards of conduct whereas the latter simply involves estimates of the likelihood of particular outcomes of performing the behaviour (that may have little to do with the self) (cf. Godin, Conner & Sheeran, in press).

Moreover, students who perceived smoking as being morally wrong were more likely to quit smoking than those who were not equally convinced that smoking represented an immoral act (Paper II). The impact of moral norms in the TPB has mainly been tested in relation to intentions in previous research (cf. Godin et al., in press; but see Beck & Ajzen, 1991; Manstead, 2000) and we were not able to identify any study which has demonstrated that moral norms predict smoking cessation. According to Schwartz (1977) the direct impact of moral norm on behaviour might be explained by the fact that people may adopt specific behaviours by conviction, that is, because they feel a moral obligation to adopt them. Thus, smoking cessation is adopted not only because of the expected outcomes of performance (like assumed in the TPB), but for more internalised feelings (cf. Schwartz, 1977).

However, it should be noted that the moral norm-behaviour relation in Paper II was relatively weak. In this context, the results from a recent study appear interesting. Godin et al. (in press) argued that the lack of support for the direct impact of moral norms on behaviour (in presence of intentions) point to an alternative view, namely, that moral norms have an indirect impact on behaviour through strengthening intention. Their hypothesis was that intentions based on the moral correctness of the behaviour (morally aligned intentions) would have greater force compared to intentions based on perceived consequences of acting (attitudinal aligned intentions). This notion was based on the idea that moral considerations are more directly self-related than are considerations of behavioural outcomes. The moderating hypothesis was tested using data from 6 studies addressing behaviours in the health domain (i.e., smoking initiation among adolescents, driving over the speed limit, applying universal precautions, exercising). In accord with their assumption Godin et al. (in press) found that participants whose intentions were more aligned with their moral norm were more likely to perform behaviours compared to participants whose intentions were more aligned with their attitude. However, this moderation effect was only present when participants construed the behaviour in moral terms. Nevertheless, their hypothesis was supported in relation to all behaviours except from physical activity. Thus, based on these findings, the question seem not to be *if* moral norms predict behaviour, rather *when*.

Descriptive norm has been included successfully as an additional predictor in the TPB in several studies addressing smoking (e.g., Grube et al., 1986; McMillan & Conner, 2003; McMillan et al., 2005; Rise et al., 2005). However, Terry and Hogg (1996) challenged the idea

that descriptive norms would have a direct impact on behavioural intentions. They argued that intentions only would be influenced by perceived reference group norms when group membership is a salient basis for self-definition, i.e., for subjects who identify strongly with the group. This notion has previously been supported in relation to adolescents' intentions to smoke and the subsequent smoking behaviour (cf. Schofield et al., 2001; Schofield et al., 2003). In Paper III this assumption was supported in relation to a new behaviour, i.e., adolescents' intentions to reduce smoking. Thus, we found that the group norm-intention link was stronger for those who identified strongly with their group of friends. In Paper IV, on the other hand, the idea presented by Terry and Hogg (1996) was not confirmed. However, we found that both group norms and group identification predicted adolescents' intentions to refrain from smoking. The descriptive norm/group norm-intention relation represented small-medium effect sizes in both papers.

Neither Paper III nor Paper IV supported the impact of descriptive norms/group norms on subsequent behaviour. However, in Paper IV the results showed that *smoking by family members* (i.e., father and older siblings) increased the likelihood of adolescents taking up smoking one later. Previous research has shown that smoking initiation is most consistently predicted by friends and older siblings smoking (cf. Avenevoli & Merikangas, 2003; Conrad et al., 1992). However, the results from Paper IV are in accord with the results in the study of Engels et al. (1999), i.e., that smoking by family members was a stronger predictor than smoking by friends when predicting smoking initiation using longitudinal data (see also DeVries et al., 2003; Friestad & Klepp, 1997). These inconsistent findings might be explained by cultural differences, i.e., some studies have found that the effects of parental smoking on adolescent smoking are limited to adolescents of European and Asian descent (e.g., Sussman, Dent, Flay, Hansen & Johnson, 1987; Landrine, Richardson, Klonoff & Flay, 1994).

While the measures of smoking of parents and older siblings (measured in terms of smoking/non-smoking) applied in Paper IV comprise distal social influence, the measure of descriptive norms as applied in Paper III and Paper IV is more specific, i.e., it corresponds with the specific behaviour in question (i.e., to refrain from smoking) and a specific time frame (i.e., during the next year). It also reflects to what extent the particular behaviour is expected to be the norm in a specific group (i.e., among friends). Interestingly, smoking of parents and older siblings predicted subsequent behaviour, while the latter predicted intention. This may be explained by the fact that the measure "smoking of family member" corresponded with the subsequent behavioural measure to a larger extent than the intention measure. However, another plausible explanation is that friendship change rapidly in adolescents. Thus, while the norms of their friends at Time 1 might influence their intentions at Time 1, this does not necessarily imply that the norms of this group are equally important one year later. Thus, it is likely that the behavioural norms among the family members, which constitute a stable source of social influence, have a greater impact on their adolescents smoking behaviour over time. This assumption was supported in Paper IV where smoking by best friend was stronger correlated with smoking status at Time 1 than on Time 2, while smoking of parents and older siblings were stronger correlated with smoking status at Time 2 than Time 1.

Since the moral norms of the society at large becomes internalised during adolescence (Manstead, 2000), it is likely that family norms will influence the moral norms of an individual. Thus, while smoking by family members increase the probability of children taking up smoking (Paper IV), an alternative route is that the behavioural norms in the family affect the moral norms of an individual. The relationship between descriptive norms and moral norms should be explored further in future research addressing smoking among adolescents. An interesting issue might for instance be: do adolescents who have parents who smoke have a weaker conviction that smoking is wrong? Considering the relative impact of injunctive, descriptive, and moral norms, the results revealed that moral norm most consistently predicted

intentions. This finding corroborate with the results from the study of McMillan et al. (2005). However, further research is needed to determine the generality of these findings.

Kobus (2003) suggested that pressures to smoke cigarettes are predominately normative, and not direct and coercive, in nature. However, in accord with Friedman et al. (1985; see also Evans et al., 1978) who argue that pressures to smoke are implicit in the majority of smoking situations, the results from Paper IV demonstrated that *perceived social pressure* to smoke predicted adolescents' intentions to refrain from smoking, beyond the impact of the TPB components. Thus, adolescents who perceived being exposed to a high degree of social pressure to smoke were less motivated to refrain from smoking. We were not able to identify any study which has demonstrated that perceived social pressure predicts adolescents' intentions to refrain from smoking. However, De Vries et al. (1995) found a direct impact of perceived social pressure, beyond the effect of attitude, perceived smoking of valued others, self-efficacy and intention, in predicting subsequent behaviour after 6 (T2), 12 (T3), and 18 months (T4). In accord with their finding, the results in Paper IV showed that adolescents who perceived being exposed to social pressure were more likely to start smoking one year later than those who did not experience social pressure to the same degree.

Finally, while *alcohol use* in a strict sense can not be viewed as a normative influence variable, alcohol consumption in adolescents usually takes place in a social context with friends, older siblings etc. Thus, in this capacity it may be regarded as a behaviour which potentially can influence a wide range of other behaviours, e.g., sexual behaviour, smoking behaviour etc. Consistent with this reasoning, Paper IV revealed that participants who reported drinking alcohol at Time 1, were more likely to be smoking one year later. Results found in other longitudinal studies are inconsistent, i.e., some find that alcohol predicts cigarette use more strongly than the converse (e.g., Jackson et al., 2002), while others identified that smoking was particularly important for subsequent alcohol use (Wetzels, Kremers, Vitória & De Vries, 2003). These inconsistent findings might be related to cultural differences (e.g., Wetzels et al., 2003), but further research is needed to draw firm conclusions regarding this notion.

In sum, the results from this thesis support the notion by Terry and Hogg (1996) that subjective norm as conceptualised in the TPB is not able to account for all aspects of normative influence. Also, this thesis provide some useful information concerning the underlying processes of normative influence of smoking initiation and cessation which previous research seem to have neglected (cf. Kobus, 2003). The results revealed that distal and proximal, overt and covert normative pressures are important sources of influence in relation to smoking initiation and cessation. Finally, the inclusion of the predictors satisfies the criteria outlined by O'Keefe (2002), i.e., they made relatively large contributions, beyond the TPB, in relation to a set of new behaviours. Interesting issues for future research might be: (i) do conflicting normative beliefs influence the predictive utility of subjective norms?, (ii) how does smoking by family members, e.g., parents, influence the moral norms of adolescents in the context?, (iii) does the influence of e.g., injunctive norms, descriptive norms and moral norms vary across age groups and different groups of smokers, e.g., daily versus occasional smokers? Answers to these questions might both provide useful information in relation to smoking prevention strategies (e.g., the social influence model) and with respect to theoretical refinement.

6.2.3 Smoking - a means of self-portrayal

Self-identity, i.e., how one describes oneself using large scale social categories (e.g., "I am a smoker"), thus constitutes one source of social influence distinct from normative influence. Falomir and Invernizzi (1999) found that self-identity as a smoker significantly predicted adolescents' intentions to quit smoking, i.e., participants with a strong identity as a smoker were less motivated to quit smoking than those whose identity was not so strong. We found

that self-identity as a smoker significantly predicted parents' intentions not to expose their children to ETS (cf. Paper I) and adolescents' intentions to reduce smoking (cf. Paper III). Self-identity as a non-smoker significantly predicted adolescents' intentions to refrain from smoking (cf. Paper IV). Thus, self-descriptions were important motivational sources in the decision process for both non-smokers and smokers. Adolescents who did not smoke and who had a strong identity as a non-smoker were less inclined to start smoking, while smokers (adolescents and parents of small children) who had a strong identity as a smoker were less inclined *not* to smoke. Thus, in addition to the perceived outcomes of a behaviour, the opinion of valued other, what valued others are doing and moral considerations, an individual may be motivated to retain a sense of who they are, i.e., their selves, when considering smoking or not (Charng et al., 1988). The self-identity-intention relation also implies that people may be motivated to communicate their identity to others, i.e., smoking may communicate what kind of person they want to be (Leventhal & Cleary, 1980). Thus, which specific characteristics smokers and non-smokers believe they communicate by being "a typical smoker" or "typical non-smoker" can be valuable to identify for interventional purposes.

In Paper I we also found support for the assumption that there would be an interaction between self-identity as a smoker and parent identity. Simple slope analysis demonstrated that the effect of self-identity decreased when parent identity increased from low to high. Thus, the results supported our assumption that a strong parent identity might weaken the negative impact parents' identity as a smoker has on their intentions not to smoke indoors in the presence of their children. The fact that two forms of identity influenced intentions might also apply to other behaviours in the context of smoking. For instance, in relation to quitting smoking, it might be that the individual's identity as a smoker might have a weaker impact on intentions if his/her identity as an exerciser is strong enough. Further insight into "competing identities" could provide useful information for smoking interventions.

Moreover, the results from Paper I showed that parent identity was a significant predictor of father's intentions not to smoke indoors in the presence of their children, while the parent identity-intention relationship among women was non-significant. Thus, when fathers perceive their parent identity as strong, they activate the belief that they should not smoke indoors while their children are present, more easily than mothers. One possible explanation for the higher predictive power for fathers is that it may be easier for men to express such an intention simply because they share less of their time with their children, and this might be so particularly if they have a strong parent identity. This interpretation is also consistent with the idea that men with a strong parent identity state a positive intention as a compensatory strategy for their absence. In addition, women presumably have a more complex representation of their parent identity (cf. Linville, 1987) in the sense that they presumably activate a higher number of associated behaviours in relation to this role identity than men.

The results from Paper II and Paper III supported the idea presented by Granberg and Holmberg (1990), i.e., that those who intend to behave as implied by their self-identity will be more likely to perform the behaviour than people who intend to do something not implied by their identity. Specifically, the results from Paper II showed that students who had a strong identity as a smoker were less likely to quit smoking than participants whose self-identity was not so strong. Moreover, the results from Paper III revealed that adolescents who had a strong identity as a smokers were less likely to reduce their smoking than weak identifiers. While the self-identity-behaviour relation constituted a small effect size in Paper II, the relation represented a medium-to-large effect size in Paper III. The direct impact of self-identity on future smoking cessation/reduction, unmediated by intentions, indicate that the perception of "who I am", i.e., a smoker, might trigger smoking in spite of the intention not to smoke: "I am a typical smoker, therefore I smoke". However, it is difficult to explain why this is so. In relation to Paper III, where intention did not have a direct impact on subsequent behaviour, other intentions (e.g., 'fitting in', 'being cool') might be better predictors of subsequent

smoking behaviour (cf. McMillan et al., 2005). However, it may be that in instances where self-identity has a direct impact on behaviour smoking may better be described as an act of automaticity rather than an intended and deliberate act. Such characteristics are often associated with habits, an issue which will be discussed below.

As noted above, the numerous of smoking regulations in Norway may have enhanced the social categorisation between smokers and non-smokers, resulting in a strengthened identity of the group of smokers. Consequently, smokers might find themselves in a socially stigmatised position, and thus, this may result in a need to raise their self-esteem. In this instance, one option is to leave the group of smokers and join a more valued group, i.e., non-smokers. In accordance with this reasoning, the results from Paper II showed that group identity significantly predicted students' intentions to quit smoking, beyond the effect accounted for the TPB components. Specifically, this finding implies that when an individual dislikes being associated with the group of smokers or rather would like to belong to the group of non-smokers, s/he is more likely to be motivated to quit smoking.

6.2.4 Past behaviour

Previous quit attempts significantly predicted students' intentions to quit smoking and the subsequent making of the quitting attempt six months later (Paper II). The results from Paper III showed that the impact of past smoking behaviour on adolescents' intentions to reduce smoking was marginally significant when all predictors were entered into the analysis, while past smoking behaviour was the strongest predictor of subsequent smoking reduction one year later. In Paper IV past smoking behaviour predicted adolescents' intentions' to refrain from smoking and appeared as the strongest predictor of subsequent behaviour one year later.

The findings in Paper III and Paper IV corresponds with previous research on adolescent smoking, i.e., lower pre-test smoking was the most consistent predictor of smoking cessation among adolescents (cf. Sussman, 2002) and past smoking status is usually the strongest predictor in studies addressing smoking initiation, especially when the time-lag between the waves did not extend 1 or 2 years (cf. Engels et al., 1999). However, in contrast to previous research (cf. Norman et al., 1999), the results from Paper II showed that intention appeared as a stronger predictor of smoking cessation than previous quit attempts.

The impact of past behaviour on future behaviour in Paper III and IV first of all reflects that smoking is relative stable behaviour during a year in these groups of adolescents (cf. Ajzen, 2002; Engels et al., 1999). The past behaviour-future behaviour link can also indicate that factors controlling behaviour in the past, that is intentions and PBC, have changed (Ajzen, 2001). Moreover, the influence of past behaviour might also reflect the operationalization of habits (cf. Ouellette & Wood, 1998). In Paper II past behaviour was measured in terms of "previous quit attempts". Although quite a number of people try to quit smoking several times, it is unlikely that they make a habit of it. On the contrary, previous quit attempts rather represent a way of trying to *break* a more or less established habit; smoking. Nevertheless, it is reasonable to expect that prior positive experiences with the behaviour can increase the probability that the behaviour will be repeated on future occasions, that is, persons who have attempted to quit smoking might have experienced to gain better economy, physical shape, and so forth, and thus, compared to those who never have tried to quit might be more motivated to try again. In Paper II we also found support for the notion that there would be an interaction between past behaviour and intention in predicting subsequent behaviour. Simple slope analysis supported the notion by Triandis (1980), i.e., that the more often a smoker has tried to quit smoking in the past (this is equivalent to saying that it has become under stimulus control); the less actual quitting was guided by intentions to quit. Thus, by increased experience with attempting to quit smoking, less conscious deliberation is needed in order to subsequently succeed.

In Paper III, on the other hand, the measure of past behaviour represented past smoking behaviour. Thus, the more participants reported smoking on Time 1 the less likely they were to reduce their smoking one year later. In this context the concept of habit might be more relevant. However, Verplanken (2006) argued that although repetition is necessary for a habit to develop, habits can also be regarded as mental constructs. Moreover, he found support for the notion that habit operationalised as a mental construct involving features of automaticity, i.e., lack of awareness, difficulty to control, and mental efficiency, fully mediated the effect of past snacking frequency on later snacking behaviour. The impact of the TPB components was also controlled for. Thus, he concluded that habits are distinct from frequency of occurrence. Since it is likely that smoking might be characterized by features such as “lack of awareness” and “difficulty to control”, future research should test whether this notion can be supported in relation to smoking reduction/cessation as well.

6.3 THE INTENTION-BEHAVIOUR DISCREPANCY IN THE DOMAIN OF SMOKING

One possible cause for the intention-behaviour discrepancy is the omission of other important predictors. Consistent with this reasoning, the results from this thesis demonstrated that behavioural prediction improved substantially (medium-to-large effect size) when the extension variables were entered into the TPB. Thus, in light of the finding of McMillan and Conner (2003), i.e., that the TPB accounted for less than 10% of the variance in subsequent smoking behaviours, the figure in the current papers (21-24%) clearly represents an improvement. Conner et al. (in press) addressed smoking initiation among adolescents and were able to account for 14% of the variance in subsequent behaviour using the TPB extended with anticipated regret (both additive and interaction effects). The fact that we employed an integrated model of both proximal and distal predictors of smoking initiation in Paper IV may thus be a fruitful avenue for future research addressing smoking initiation and smoking cessation. A glance through the studies included in Table I revealed that a trend-shift took place in the late nineties. While authors addressing smoking in the early nineties mainly used pure TPB-models, researchers in the late nineties started to include other variables in the model, e.g., self-identity (Falomir & Invernizzi, 1999). The most recent studies addressing smoking in the context of the TPB have applied more complex models, e.g., using the TPB extended with moral norm, family smoking, friends’ smoking, past behaviour and anticipated regret (e.g., McMillan et al., 2005). This trend-shift is, of course, related to the fact that smoking cessation and smoking initiation are complex behaviours which are difficult to predict.

In spite of the promising results reported in the current studies, still between 76-79% of the variance in behaviour remain unexplained. As suggested above, the poor performance of the TPB might reflect the fact that intentions and perceived control over the behaviour have changed. For instance, Conner et al. (in press) found that among adolescents who had stable intentions to refrain from smoking, the intention-behaviour relationship was stronger than among those with unstable intentions. Moreover, the notion that quitting intentions may be unstable was supported in a recent study conducted among adults (cf., Hughes, Keely, Fagerstrom & Callas, 2005). Hughes et al. (2005) found that among 12-17% of the participants intentions to quit smoking changed over 7 days, 15-25% changed over 14 days and 17-34% changed over 30 days. In light of these results, the intention-behaviour relationship in Paper II was noteworthy strong.

Second, the weak I-B relation might also be related to type of behaviour (cf. Randall & Wolff, 1994). One issue that must be considered in relation to smoking cessation/reduction is the fact that smokers might become dependent on nicotine, a factor which makes smoking cessation more difficult to achieve than many other health related behaviours (e.g., eating healthy, exercising). For instance, the results from a recent study conducted among 12-13 years

old smokers showed that symptoms of dependence developed even before they became daily smokers (DiFranza et al., 2003). Moreover, results from the USA and UK show that the rate of success in smoking cessation is typically 30 per cent (Shiffman, 1993), a figure which corresponds with the results in Paper II where 33 per cent of those who were strongly motivated to quit smoking subsequently succeeded in quitting. Moreover, a large proportion of self-quitters relapse within three months, and the majority of the early relapses are attributed to nicotine withdrawal syndrome, characterized by increased irritability, depression, anxiety, hunger and inability to concentrate (Foulds, 1999). Consequently, it is reasonable to expect there to be a large discrepancy between intention and behaviour in this context, and particularly in relation smoking cessation.

Third, the time interval between the measurement of intention and behaviour might have affected the strength of the relationship (cf. Sheeran & Orbell, 1998). Among the four papers included in this thesis, intentions only retained significantly related to behaviour in Paper II. While the time interval in Paper II was six months, the time interval in Paper III and Paper IV was 12 months. Thus, this may partly explain the weak impact of intentions in the latter papers. The weak impact of intention in the two latter papers may also be related to the fact that while Paper II concerned students' intentions (aged 26), Paper III and Paper IV concerned adolescents' intentions (aged 14). Thus, it might also be that older individuals have more stable intentions than younger individuals. However, this is an empirical question which needs to be addressed in future research.

Fourth, Kremers, Mudde and De Vries (in press) found that uptake of smoking among adolescents appeared as an unplanned action, i.e., youngsters experimented with smoking without rational plans to smoke in the future. This finding particularly relates to Paper IV which addressed smoking initiation. In relation to smoking cessation/reduction, on the other hand, smoking can occur in spite of an intention to quit/reduce smoking, i.e., as a result of a habitual process (cf. Verplanken, 2006). Finally, the weak intention-behaviour relation indicate that smoking might result from other intentions, e.g., 'fitting in' or 'looking cool' (cf. McMillan et al., 2005). This might be an interesting issue for future research addressing smoking, and maybe particularly among adolescents or those who recently have started smoking.

6.3.1 Sources of the I-B gap

To obtain more insight in the sources of the discrepancy between intention and behaviour in relation to smoking cessation, we adapted the procedure outlined by Orbell and Sheeran (1998; see also McBroom & Reed, 1992) in Paper II. The results showed that the intention-behaviour discrepancy mainly could be ascribed one group, i.e., 67% of the participants with positive intentions to quit smoking who failed to do so (cf. *inclined abstainers*). Nevertheless, 16% of the participants with negative intentions to quit subsequently quit smoking (cf. *disinclined actors*). No study has previously used this method to illuminate the sources of consistency and discrepancy between intention and behaviour in relation to smoking cessation. Nevertheless, the results in Paper II do correspond with the findings of Orbell (2004) where inclined abstainers constituted the main source of the intention-behaviour discrepancy across nine studies and three classes of behaviours. Moreover, the results from the discriminant analysis (Paper II) showed that the specified predictors only were able to discriminate between those who were inclined to quit smoking and participants who disinclined, and not between the two groups of incliners and disincliners. These results are consistent with previous findings (see Orbell, 2004). *T* tests revealed, however, that inclined actors scored significantly higher than inclined abstainers on intention. Thus, consistent with the reasoning in the TPB, the stronger the intentions to quit smoking, the more likely incliners were to subsequently quit smoking. In addition, disinclined actors scored significantly higher than disinclined abstainers on moral norms and PBC. Thus, in spite of a negative intention to quit, the fact that they

perceived smoking to be morally wrong and the fact that they perceived having a high degree of control over quitting smoking, increased the likelihood of disincliners to subsequently quit.

Nevertheless, 67 per cent of the smokers who were motivated to quit smoking failed to do so. Why is it so difficult for people to enact their intentions? Sheeran et al. (2005) proposed that a number of processes underlie the intention-behaviour discrepancies, two of which will be discussed below: (i) intention viability and (ii) intention elaboration.

6.3.1.1 Intention viability

Intention viability refers to the idea that it is impossible for most decisions to be enacted in the absence of particular abilities, resources or opportunities (cf. Sheeran et al., 2005). While PBC appeared as a strong predictor of intentions in all studies, the direct impact of PBC on behaviour was only supported in Paper IV. According to Ajzen and Madden (1986), two conditions determine whether PBC directly affects behaviour: (i) the behaviour being predicted must not be under complete volitional control, and (ii) PBC must reflect actual control in the situation with some degree of accuracy. Consequently, the important issue is to what extent PBC acts as a proxy for actual control, that is, how accurately PBC reflects actual control over the behaviour. This issue has received a scant amount of attention in TPB research (Ajzen & Madden, 1986, Expt 2; Sheeran, Trafimow & Armitage, 2003).

Sheeran et al. (2003) developed and validated a proxy measure of actual control (PMAC). Their assumption was that people only could be certain of their actual control over a specific behaviour if they previously had tried to perform the behaviour. They operationally defined PMAC by items like 'How easy/difficult was it for you to do X in the last two weeks' and 'How much control did you have over doing X'. However, the most important feature of the PMAC measures is that they correspond with the PBC measures (conducted before performance of the behaviour) so that one can derive a measure of *PBC accuracy*. Sheeran et al. (2003) found a significant interaction between PBC and PBC accuracy in two studies (eating a low-fat diet and exercise behaviour). In sum, they found that when accuracy was low, PBC failed to predict behaviour, but that the predictive validity of PBC increased as accuracy improved from moderate to high.

In Paper II we had the possibility to test whether the findings of Sheeran et al. (2003) could be replicated in relation to smoking cessation¹². In addition, we assumed that an accurate perception of control would attenuate the impact of past behaviour on future behaviour, a notion which has not been tested previously. We used the same procedure as outlined by Sheeran et al. (2003) when computing the PBC accuracy measure (see Appendix D, for details), but failed to replicate their finding. The results from Paper II showed that PBC accuracy had a significant impact on behaviour, but that it did not moderate the PBC-behaviour relationship. Thus, participants who had an accurate perception of control more likely quit smoking than participants with a less accurate control perception. The assumed interaction between past behaviour and PBC accuracy was supported, i.e., when PBC accuracy was high the impact of past behaviour was weakened. In addition, the direct impact of intentions and past behaviour was confirmed, while PBC failed to predict behaviour. Moreover, *t* tests revealed that inclined actors had a more accurate perception of their behavioural control than inclined abstainers. In addition we found that disinclined actors scored significantly higher than disinclined abstainers on PBC accuracy (see Appendix D). Thus, smoking cessation was more likely to occur among individuals (both inclined and disinclined) with an accurate perception of control. Further research is however needed to determine whether these results can be replicated in other samples. However, as noted by Sheeran et al. (2005), since intention viability refers to actual – and not perceived – control,

¹² However, these results were not included in Paper II.

initiatives to promote intention-behaviour consistency by this route is likely to prove resource-intensive. Thus, economic and policy interventions may be more appropriate for increasing intention viability whereas psychological interventions may be more appropriate in relation to other processes (cf. Sheeran et al., 2005).

6.3.1.2 Intention elaboration

Another reasons that people fail to engage in intended behaviours is that they do not elaborate in sufficient detail the contextual opportunities that would permit realisation of their intention (cf. Sheeran et al., 2005). In the absence of such elaboration, the person is likely to miss opportunities to act, or not know how to act even if an opportunity presents itself (cf. Orbell, 2004; Sheeran et al., 2005). In this context, the strategy of forming implementation intentions has appeared as an effective tool for handling problems with elaboration of goal intentions (Gollwitzer, 1993). In Paper III we tested the impact of *action planning* on smoking reduction among adolescents after one year. The results revealed that action planning predicted subsequent behaviour, beyond the effect accounted for by the TPB components. Moreover, the results in Paper III supported the idea presented by Verplanken and Faes (1999), i.e., that planning (of how to reduce smoking) was not able to break the effect of counterintentional habits (i.e., smoking). However, in the final step, the impact of action planning became marginally significant. The weak impact of action planning might be explained by the fact that reducing or quitting smoking is a complex and difficult goal to reach (cf. Orbell, 2004) and that adolescents might lack the ability to reduce or quit smoking on their own (cf. Engels et al., 1998; Paavola et al., 2001). Moreover, the impact of action planning might have improved if plans of "when" and "where" (i.e., which situations) also were included in the measure (cf. Rise et al., 2005). Thus, future research addressing smoking cessation/reduction among adolescents should test the impact of plans of "when", "where" and "how" to quit/reduce smoking.

Nevertheless, a recent study reports promising effects of implementation intentions on smoking initiation among adolescents (cf. Higgins & Conner, 2004¹³). The results from the study of Higgins and Conner (2004) showed lower levels of self-reported and objectively measured smoking in the relevant implementation group across a 2-year period. Another point worth mentioning in this context was demonstrated by Sniehotta, Schwarzer, Scholz and Schüs (2005). Sniehotta et al. (2005) found empirical support for a distinction between action planning and coping planning in relation to physical exercise. They defined coping planning as a mental simulation of overcoming anticipated barriers to action. More interesting, they found that the two planning cognitions operated differently in the behavioural change process, i.e., while action plans were more influential early in the rehabilitation process, coping plans were more instrumental later on. We believe that this distinction might prove to be useful for future research addressing smoking as well, and particularly we assume that these concepts might provide useful information in relation to smoking cessation and reduction since such behaviours are associated with more obstacles and barriers than smoking initiation.

6.4 IMPLICATIONS FOR SMOKING INTERVENTIONS

Research is only beginning to accumulate concerning the effects of different behavioural change strategies, and there is even less evidence concerning their relative effectiveness. As far as we know, only one attempt is done to identify studies that explicitly have applied the TPB to behavioural change interventions. Hardeman et al. (2002) identified 30 papers which described 24 distinct interventions, only rarely being explicit about the use of the TPB. The TPB was

¹³ The study was refereed to by Sheeran et al. (2005). Unfortunately, we did not get the opportunity to read the original manuscript.

mainly used to measure process and outcome variables and to predict intention and behaviour, and less commonly used to develop the intervention. In conclusion Hardeman et al. (2002) reported that half of the interventions were effective in changing intention, and that two-thirds were effective in changing behaviour. Where calculable, the effect sizes were generally small. Finally, they found that effectiveness was unrelated to use of theory in the development of the interventions. Nevertheless, few studies have applied results from theory-based studies to develop interventions (cf. Hardeman et al., 2002; Michie & Abraham, 2004). Thus, the respective papers included in this thesis provide some information which might be useful in developing future smoking interventions.

6.4.1 Targeting the TPB components

The data from Paper I indicate that the most efficient way to enhance parent' intentions not to smoke indoors in the presence of their children is to target PBC and subjective norms. However, since PBC was a stronger predictor of women's intention, it is likely that an intervention designed to alter PBC will have more impact on women's motivation than men's motivation. The results from Paper II suggest that students are most likely to quit smoking if their intention to quit is strong. Thus, in this group, strengthening intentions will be the most effective strategy for future interventions. To enhance students' intentions to quit smoking the data from Paper II indicate that targeting attitudes and PBC would be most effective. The results in Paper III revealed that there was a significant interaction between PBC and intention in relation to subsequent smoking reduction, i.e., intention was a stronger predictor of subsequent smoking reduction for adolescents who had a high degree of control over reducing smoking. On the other hand (since interactions always are symmetrical), the effect of actual control on behaviour will be larger the stronger the person's intention to perform the behaviour. Consequently, an intervention that increases intention will be more effective in producing behaviour change if actual control is high (or if the intervention also increases the degree of actual control). Similarly, if an intervention also increases actual control it will be more effective in producing behaviour change if intention is high (or if the intervention also increases intention) (Sutton, 2002). The results from Paper III indicate that one can enhance intentions by targeting subjective norms and PBC. Moreover, by enhancing the control perceptions of adolescents who are non-smokers it is more likely that they will remain non-smokers over a year (cf. Paper IV). The weak impact of intention on smoking initiation might indicate that intentions are unstable, a notion that was confirmed in a study addressing the same issue among English adolescents (cf. Conner et al., in press). Thus, in addition to targeting PBC to enhance intentions, it may be fruitful to employ strategies (e.g., rehearsal or role playing) to protect intentions from conflicting goals (Karoly, 1988; Kuhl, 1992).

Sutton (2002) clearly specified a number of ways of changing attitudes and subjective norms through manipulating salient beliefs, extending the earlier suggestions of Ajzen and Fishbein (1980). Bandura (1986) outline four ways in which perceptions of control over a behaviour (or self-efficacy) can be enhanced: through personal mastery experience by setting and achieving sub-goals (e.g., avoiding situations where smoking is likely), through observing other's success (e.g., modelling famous personalities who have successfully quit smoking), through standard persuasive techniques, and through use of relaxation techniques (e.g., to control feelings of arousal or anxiety). A self-help intervention designed to increase quitting among smokers did in fact show that information designed to enhance self-efficacy and outcome expectancies (i.e., attitudes) provided changes in these cognitions which subsequently increased the quit-rates (cf. Dijkstra & DeVries, 2001).

Thus, to develop a TPB-based smoking intervention, future research should use the suggestions outlined by Sutton (2002). For example, if the goal is to make daily smoking students in Norway quit smoking, one should first conduct an elicitation study in a sample of

students to identify the *modal salient beliefs* which are relevant for the behaviour and the given population. Those beliefs that are elicited first in response to open-ended questions such as “What do you see as the advantage of you quitting smoking during the next 6 months?” are assumed to be salient for the individual. The beliefs elicited most frequently are regarded as the modal salient beliefs. The second step is to conduct a study in a new sample of Norwegian students who are daily smokers in which all the TPB variables, including modal salient beliefs, should be assessed according to Ajzen (1991). Based on the data from this study, intention is regressed on attitude, subjective norm and PBC in order to estimate the relative contribution of the three determinants. The findings are used to decide whether to target the attitudinal component only, or all three components. Third, the same data should be used to identify the beliefs that best discriminate between intenders and non-intenders (or those who subsequently acted or did not act). Fourth, the researcher develops an intervention designed to change the key beliefs identified. To evaluate the intervention a TPB-study in the target population needs to be conducted.

6.4.2 Targeting the emotions of smokers

Both Paper I and Paper II revealed that intentions were predicted by positive anticipated affect. In addition, the interaction between negative anticipated affect and moral norm was significant in both papers. There is good evidence that the anticipated affect can be influenced, primarily by increasing the salience of such post-behavioural emotions. One strategy might be to simply induce people to think about such feelings (cf. Abraham & Sheeran, 2003; Richard et al., 1996b; Sheeran & Orbell, 1999). Richard et al. (1996b) found that persons who were asked to indicate how they would expect to feel *after* having unprotected sex were more likely to intend to use condoms and subsequently were more consistent condom users than were persons who rated feeling *about* having unprotected sex. Thus, one effective way of influencing anticipated emotions seem to be inviting the receivers to consider how they would feel if they followed (or did not follow) a particular course of action, e.g., smoking or not smoking indoors while their children are present (cf. Paper I). Data relating to Paper I do, however, indicate that this strategy would be more effective among women than among men. Another viable strategy might be to suggest that receivers will experience a given emotion if they do follow a particular course of action, e.g., that they would feel relief if they quit smoking (cf. Paper II). Parker, Stradling, and Manstead (1996) tested the impact of videos that were meant to influence either behavioural beliefs, normative beliefs, perceived behavioural control, or anticipated regret. They found that the anticipated regret video evoked greater regret than other videos, and that the anticipated regret video induced more negative attitudes toward speeding than a control video. Future research should address whether positive anticipated affect also might contribute in changing behaviour, and particularly smoking.

6.4.3 Targeting norms

Moral norm was a significant predictor of intentions in all papers, and had a direct impact on behaviour in Paper II. Thus, influencing moral norms might potentially contribute to smoking cessation and ensure that people refrain from smoking. However, little explicit research guidance exists on how to change a moral conviction, although strengthening already existing moral norms or creating new moral convictions could be two possible strategies (see O'Keefe, 2002).

As noted above, moral norms of the society at large becomes internalised during adolescence (Manstead, 2000), and thus, it is likely that family norms will influence the moral norms of an individual. While smoking by family members evidently increases the probability of children taking up smoking (Paper IV), an alternative route is that the behavioural norms in

the family affect the moral norms of an individual. Thus, by increased smoking cessation efforts aimed at parents of young children, one may obtain an effect on two levels. First, given that the parents succeed in quitting smoking, their children will not be observing a smoking parent (cf. descriptive norm). Second, they might be more convinced that smoking is wrong (cf. moral norms). However, the relationship between descriptive norms and moral norms should be explored further in future research. The findings in the current studies also emphasize the need for further insight into the mechanisms that are necessary to change moral norms.

In relation to descriptive norms (which predicted intentions in Paper III and Paper IV), there is evidence to suggest that there may be a false consensus effect with regard to reports of peer drug use (Wolfson, 2000). If perceived peer smoking is higher than actual peer smoking, drawing this to attention in smoking interventions aimed at adolescents may lessen the impact of descriptive norms.

Paper IV also demonstrated that adolescents who perceived to be exposed to a high degree of social pressure to smoke were less inclined to refrain from smoking and were more likely to take up smoking one year later. Most smoking prevention programs seek to teach adolescents methods to counter pressure to smoke (Ellickson, 1995). Few studies, however, indicate which specific type of social influence information (information on norms, modelling or direct pressure) will be most effective in motivating adolescents not to take up smoking. Thus, more research is needed to explore the impact of various norms, and whether specific norms influence some groups (e.g., adolescents) more so than others (e.g., parents of small children).

Finally, the results from Paper IV indicate that interventions designed to reduce alcohol use among adolescents may have a second positive effect, i.e., if the interventions succeeds in reducing the alcohol use the same individuals will less likely to take up smoking.

6.4.4 Targeting the identity of smokers and non-smokers

Smokers who had a strong identity as a smoker were less motivated to quit or reduce their smoking (Paper I, Paper III), while non-smokers with a strong identity as a non-smoker were less inclined to start smoking. In addition, individuals who had a strong identity as a smoker were less likely to subsequently quit smoking (Paper II) and reduce their smoking (Paper III). Thus, the apparent independent contribution of self-identity to the prediction of intention and behaviour suggest that self-identity may be a distinctive target for social influence. However, few attempts have been made to identify strategies that might be used in order to change the self-identity of an individual (cf. O'Keefe, 2002). O'Keefe (2002) did however suggest two possible routes through which self-identity might be influenced. First, one can create some new self-identity for the receiver by inviting them to think of themselves in some new and attractive way. The second strategy might be strengthening an already existing self-identity. This strategy would be particularly fruitful in relation to adolescents who are non-smokers. In this context it might be worthwhile to repeat the finding in Paper I, i.e., that one identity (parent identity) moderated or weakened the impact of another identity (self-identity as a smoker). Thus, it may be relevant to increase the salience of parent identity for example by showing vivid pictures of fathers who smoke in the presence of children and in a following sequence showing pictures of smoking fathers who are careful of avoiding this. Further insight into "competing" identities in various populations (e.g., students, adolescents and parents of small children), might provide useful information for interventions.

Moreover, group identity had a strong impact on students' intentions to quit smoking (Paper II) and thus represents another target for social influence. For example, it might be worthwhile to address weak identifiers in order to further weaken their emotional ties to the group of smokers by emphasising attractive characteristics of the non-smokers (see Falomir & Invernizzi, 1999). On the other hand, the strong effect of group identity also indicates that

quitting smoking not only concerns a change of behaviour, but also a change of identity. Hence, new knowledge on how to alter self-identity would be valuable for future smoking cessation programs.

6.4.5 Smoking cessation through planning

The papers included in this thesis demonstrated that intentions, and particularly adolescents' intentions (cf. Paper III and Paper IV), are not easily enacted. These results correspond with previous findings, i.e., adolescents who are motivated to quit smoking might lack the necessary skills to transfer their intentions into actual behaviour (cf. Engels et al., 1998; Paavola et al., 2001). Nevertheless, Paper III demonstrated that adolescents who had considered various strategies in relation to reducing smoking, e.g., those who made plans of *how* they can avoid specific situations, were more likely to reduce/quit their smoking than adolescents who had not given it a thought. However, the impact of action planning was relatively weak. Thus, to improve the efficacy of action planning, it might be a fruitful strategy to furnish adolescents who are motivated to quit or reduce their smoking with plans of *how*, *when* and *where* (i.e., which situations) they can manage to reduce their smoking. This strategy might also increase the quit rates among students wanting to quit smoking (cf., Rise et al., 2005), and it may ensure that adolescents who are non-smokers refrain from smoking (cf., Higgins and Conner, in press). In addition, since coping planning seem to be more effective in relation to maintenance, it could be equally important to induce such plans in relation to smoking reduction and cessation (cf., Sniehotta et al., 2005).

7. CONCLUSIONS

The results in this thesis demonstrated that the theory of planned behaviour provided good predictions of intentions with an R^2 ranging from .13-.56. These findings are in accordance with previous research that has applied the TPB to study health behaviour and specifically intentions to quit or refrain from smoking. In spite of the relatively large amount of variance accounted for by the TPB, the studies supported the inclusion of several additional variables: positive and negative anticipated affect, moral norms, descriptive norms, self-identity, group identity, perceived social pressure and past behaviour. The extension variables explained 9-19% of the variance in intentions, after the TPB components had been accounted for. This improvement represents a medium-to-large effect size. The findings have several theoretical implications. First, subjective norms are not able to account for all sources of normative influence. In addition, when an individual consider smoking or not, s/he takes into account what others are doing (cf. descriptive norms), what s/he thinks is the right or wrong thing to do (cf. moral norm). The results also revealed that decisions can be influenced by direct pressures such as cigarette offers etc. (cf. perceived social pressure). Smoking decisions also depends on the degree to which the individual believe that the specific behaviour enables him or her to retain to his/her sense of self (cf. self-identity). Also, behaviours might be motivated by the way s/he perceives the group s/he belongs to, e.g., if s/he is a smoker but dislikes being associated with the group of smokers, s/he will be more motivated to quit smoking (cf. group identity). Second, the results demonstrated that in addition to cognitive aspects, represented by attitudes in the TPB, smoking decisions are influenced by the emotions the individual expects to experience after s/he has conducted a particular behaviour, e.g., quitting smoking (cf. positive and negative anticipated affect). Finally, past experiences with a specific behaviour might motivate the individual to perform the behaviour on later occasions (cf. past behaviour).

The TPB components accounted for 1-12% of the variance in behaviour. These figures are in accord with results from previous research which have shown that the intention-behaviour gap is particularly large in this context. However, the TPB did benefit from being extended with a number of variables in predicting behaviour: past behaviour, moral norms, self-identity, action planning, smoking by family members, perceived social pressure to smoke, and alcohol use. The extension variables explained 9-23% of behaviour, beyond the TPB components. The improvement accounted for by the extension variables represents a medium-to-large effect size. Thus, while most previous studies have demonstrated that self-identity predicts intentions, the results from this thesis also demonstrated that a strong identity as a smoker increased the likelihood of subsequent smoking. On the other hand, when the individual perceived smoking to be morally wrong, s/he was less likely to smoke in the future. Hence, in addition to intention and PBC, smoking or not smoking might be a result of more internalised feelings related to the self. Nevertheless, smoking by family members, perceived social pressure to smoke and alcohol use increased the likelihood of adolescents taking up smoking. This finding implies that stable factors in the immediate social surroundings of an individual can be more decisive for smoking uptake than cognitions represented by the TPB. The impact of past smoking behaviour on future smoking behaviour first and foremost indicates that behaviours are stable. However, the influence of past behaviour might also reflect the operationalization of habits. Current developments in habit measurement methodology may enhance our ability to understand the role that previous behaviour and habit play when applying the TPB to smoking. The results from Paper II revealed that in spite of a positive intention to quit smoking, 67 per cent of the students failed to do so. Nonetheless, adolescents who made plans on how to reduce their smoking were more likely to subsequently reduce or quit their smoking than adolescents who did not make such plans. Thus, one important task for researchers dealing with smoking cessation and smoking initiation is to get a more thorough understanding of the workings of self-regulatory strategies such as action and coping planning.

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Paper I

Predicting parents' intentions not to smoke indoors in the presence of their children using an extended version of the theory of planned behaviour

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Abstract

The present study examined whether the theory of planned behaviour (TPB) could predict parents' intentions not to smoke indoors in the presence of their children. Moral norms, smoker identity, parent identity, and positive and negative anticipated affect were included as additional predictors. A questionnaire was sent to a representative sample of 1000 households in Norway with children born in 1998, and was completed by 612 respondents. The TPB variables and the extension variables were measured among the smokers in the sample (101 women and 61 men). Intentions were predicted by subjective norms and perceived behavioural control. The data were supportive of the inclusion of smoker identity and moral norms in the TPB. We also found a significant interaction effect between parent identity and smoker identity, and between negative anticipated affect and moral norms. Furthermore, we identified significant interactions between gender and three of the predictors of behavioural intentions. The TPB components explained 56% of the variance in intentions, while the additional variables explained a further 19%.

Keywords: *Theory of planned behaviour, moral norms, smoker identity, parent identity, positive and negative anticipated affect, interaction effects, gender differences*

Introduction

Exposure to environmental tobacco smoke (ETS) is now recognized as an important public health problem (see Gehrman & Hovell, 2003). A number of epidemiological studies have demonstrated associations between exposure to ETS and various human illnesses in both children and adults; for example, children who are exposed to ETS develop diseases like asthma, pneumonia and bronchitis more often than the non-exposed children (Environmental Protection Agency, 1992; World Health Organization (WHO), 1999;

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see Li et al., 2003 for review). For young children and adolescents, the problem of ETS is primarily related to parental smoking at home. In a national survey in the US, it was observed that 49% of children encountered ETS in their home, and that 43% of them below 11 years of age lived in a home with at least one smoker (Overpeck & Moss, 1991). Furthermore, the American data stemming from the 1996 Behavioral Risk Factor Surveillance System (BRFSS) indicated that 15 million children and adolescents were exposed to ETS in their homes (Centers for Disease Control and Prevention, 1997). Adding to the above medical evidence, children who grow up with tobacco-smoking role models (e.g., parents) are also more likely to start smoking themselves (Hansen et al., 1987; Tucker et al., 2002). Thus, children are both directly and indirectly affected by their parents' smoking behaviour. Recent surveys in Norway, performed in 1995 and in 2001, indicate that there has been a decline in the percentage of households where small children were exposed to ETS from 32% in 1995 to 18% in 2001 (Lund et al., 2004). Still, in light of the consequences the ETS exposure has for children, these numbers are too large.

Past research addressing smoking behaviour among parents with small children has mainly been concerned with describing the proportion of parents who expose their children to ETS, in terms of a restricted set of independent variables (see Lund et al., 1998a). Thus more research, preferably with a theoretical framework, is needed to provide an account of the motivational processes underlying the decision of parents to avoid exposing their children to cigarette smoke.¹

The present study applied the Theory of Planned Behaviour (TPB) (Ajzen, 1991) for this purpose. Earlier research has demonstrated that the model is quite successful in predicting a wide range of health related behaviours (Armitage & Conner, 2001; Godin & Kok, 1996), including smoking (Godin et al., 1992; McMillan & Conner, 2003; Moan & Rise, 2004; Norman et al., 1999; Willemson et al., 1996).

According to the TPB, the performance of a specific behaviour is predicted by the *intention* to perform the behaviour. Behavioural intentions are assumed to "... capture the motivational factors that influence a behaviour; they are indicators of how hard people are willing to try, of how much effort are they planning to exert, in order to perform the behaviour." (Ajzen, 1991, p. 181). In turn, the intention to perform a specific behaviour is determined by (i) *attitude*, i.e. a positive or negative evaluation of the behaviour, (ii) *subjective norms* which refer to the individual's perception that important others in his or her social environment wish or expect him or her to behave in a certain way, and (iii) *perceived behavioural control (PBC)*. PBC is defined as the person's own perception of how easy or difficult it is to execute the behaviour, and is assumed to influence behaviour in two ways: (a) it influences the intention to perform the behaviour, and (b) it can influence the behaviour directly to the extent that it gives an accurate picture of the actual control.

According to the TPB, the more positive the person's attitude, the stronger the subjective norms and the greater the perceived control over the behaviour, the stronger the intention to perform the behaviour and correspondingly, the more likely the person is to perform the behaviour. In the present study the focus was on predicting parents' intentions not to smoke indoors in the presence of their children² as the dependent variable. Although the

¹We succeeded in identifying one theoretically based study (or rather an outline of a research project) concerning this issue (see Borrelli et al., 2002). The results from this study have however not been published yet.

²The present study was conducted among parents' who had children born in 1998. Thus they had at least one child. We cannot, however, know whether they have more than one child, but we must assume that many of them do. Therefore we write "intentions not to smoke indoors in the presence of their children".

TPB is held to be a complete model of the proximal determinants of behaviour (i.e., other influences like demographic variables, past behaviour and personality variables are assumed to influence behaviour via the variables that are specified in the model), a number of additional predictors have been examined for the enhanced predictability of behavioural intentions (see for review Conner & Armitage, 1998; O'Keefe, 2002). In this context, O'Keefe (2002) has sounded a warning against the somewhat uncritical inclusion of additional predictors in the TPB arguing that this practice may undermine the principle of parsimony and therefore may lead to a plethora of behavioural intention models, whose validity and generalizability are indeterminate. To guard against this problem, he proposes two criteria that should be used to evaluate additional predictors in the TPB: First, a given conceptual candidate should provide a large additional contribution to the prediction of intention (after controlling for the components of the TPB) which reaches well beyond statistical significance, and the second, the proposed concept needs to demonstrate its utility in predicting behavioural intentions across a wide range of behavioural domains (see also Conner & Armitage, 1998).

According to the above reviews (Conner & Armitage, 1998; O'Keefe, 2002), self-identity, moral norms and anticipated affective reactions stand out as the most important additional predictors to the TPB. We could however only identify four studies (Conner & Flesch, 2001; Evans & Norman, 2003; Jackson et al., 2003; Moan & Rise, 2004) that applied the three predictors simultaneously within the framework of the TPB, and consequently the three concepts need to demonstrate their utility as predictors of behavioural intentions in a wider range of behavioural domains.

Self-identity, i.e. how one describes oneself using large scale social categories ("I am a smoker, exerciser" etc.), has been shown to add to the prediction of intentions beyond the components of the TPB in a wide range of behavioural areas (Åström & Rise, 2001; Sparks, 2000). In a recent meta-analysis, self-identity was found to account for 7% additional variance above the TPB components even when past behaviour was included into the equation (Rise et al., 2003). This meta-analysis included 24 studies from different behavioural domains: health behaviours, contraceptive behaviours, altruistic behaviours, and environmental behaviours. The authors argued that self-identity satisfies the two criteria outlined by O'Keefe (2002) to qualify as a standard additional predictor in the TPB.

In addition to smoker identity, we argue that it may be worthwhile to explore *parent identity* (mother and father, respectively) in the present context, since we are dealing with smoking decisions of parents in relation to their three-year-old children. This type of identity fits the traditional conceptualization of a role-identity. By taking on a role identity, persons adopt self-meanings and expectations to accompany the role as it relates to other roles, and they then act to preserve these meaning and expectations (Thoits & Virshup, 1997). Role identity theorists have accordingly focused on the match between the individual meanings of occupying a particular role and the behaviours that a person enacts in that role while interacting with others (Burke & Reitzes, 1981). In the present context, smoker identity and parent identity should be conceptually distinct as well as different with regard to their behavioural consequences. Smoker identity is a specific identity having straightforward behavioural implications, i.e. if one's description of oneself as a smoker is strong, the probability that one intends to smoke indoors in the presence of one's children should be higher than if this belief is not so strongly held. On the other hand, the meaning of parent identity and appropriate behaviours to be enacted, need to be negotiated. Thus, whether smoking indoors while the children are present is one of these behaviours which are to be enacted if one's parent identity is strong, is a question which needs to be

determined empirically. Moreover, the effect of smoker identity might depend on the degree to which an individual identifies himself or herself, as being a parent. Hence, we wanted to test whether parent identity could moderate the impact of smoker identity (i.e., when parent identity is strong, the impact of smoker identity is weakened) by including an interaction term of parent identity and smoker identity.

There is a widely held belief in the general population that exposing other people to cigarette smoke (passive smoking) is a socially unacceptable behaviour (Goodin, 1989). Since we are here dealing with ETS in relation to small children, it seems reasonable to place this behaviour within the domain of morality. According to Schwartz (1970) moral decisions have three distinct features: (i) they have consequences for the welfare of others, (ii) the decision-maker is responsible for these consequences, and (iii) the particular actions and responsible agents are evaluated as good or bad. In the context of the TPB, *moral norms* have been included as an additional predictor with considerable success (Manstead, 2000; see also Harland et al., 1999; Légaré et al., 2003; Moan & Rise, 2004). In a comprehensive review Manstead (2000) observed that moral norms, i.e., "...the conviction that some forms of behaviour are inherently right or wrong, regardless of their personal or social consequences..." (p. 12), accounted for variance in intentions above the TPB components in a wide range of behavioural domains (e.g., blood donation, dishonest actions, condom use, eating genetically produced food and committing driving violations). Consistent with this review, Rise and Moan (2002) found that the moral norm was the strongest predictor of the intention to quit smoking, when added to the components of the TPB. Moreover, Moan and Rise (2004) found that moral norms predicted students' intentions to quit smoking and the subsequent making of their quitting attempt, beyond the TPB components. These findings support the idea that smoking decisions should be placed within the domain of morality.

Finally, *anticipated affective reactions* of a particular behaviour, i.e. feelings about having performed the target behaviour, have been shown to predict behavioural intentions beyond the TPB components in a number of studies (Conner & Flesch, 2001; Moan & Rise, 2004; Richard et al., 1996a,b; Sheeran & Orbell, 1999). These post-behavioural feelings may become salient if people are invited to think about and try to foresee the feelings they most likely will experience after having performed a particular behaviour, in this case a socially proscribed behaviour, smoking a cigarette indoors while the children are present. Within the context of the model of goal-directed behaviour Perugini and Bagozzi (2001) opened up the possibility that anticipated positive and negative affective reactions are distinct concepts implying that they are not opposite poles on the same dimension. They provided evidence of this distinction in relation to prediction of goal-directed behaviours, i.e., behaviours which are performed for the sake of goal achievement. Moan and Rise (2004) found that this distinction also holds for specific behaviours in the context of the TPB, both in terms of predicting the intention to quit smoking and a principal component analysis. However, it might be of interest, both theoretically and for practical reasons, to explore whether it is possible to make a distinction between positive and negative affect in relation to smoking when children are present, and whether the two concepts predict behavioural intentions.

Anticipated affective reactions have been linked to moral norms (Conner & Armitage, 1998; Harland et al., 1999; Manstead, 2000; O'Keefe, 2002). For example, one might argue that if an individual holds a strong belief that it is morally wrong to smoke indoors in the presence of his or her children, it is likely that s/he will experience regret and guilt if s/he does not live up to her/his personal standards of behaving. However, it is clearly possible for affective reactions to be anticipated in the absence of moral considerations

(Manstead, 2000; O'Keefe, 2002). Moreover, it might be argued that moral norms and parent identity are closely connected in the sense that if a parent is likely to have her/his parent identity salient in a ETS-smoking decision then s/he might at the same time perceive a moral obligation not to smoke indoors when his/her children are present. Based on these assumptions, we wanted to test empirically whether there could be an interaction between both negative anticipated affects and moral norms, and moral norms and parent identity. Thus, it is possible to argue that the three concepts (parent identity, moral norms, and anticipated affect) are intertwined. They should, however, preferably be treated as differentiated concepts (O'Keefe, 2002).³

Finally, in light of Ajzen's (1991) idea that the impact of the TPB variables may differ in different target populations, we wanted to explore whether different processes guide the motivation of women and men not to smoke indoors while their children are present, i.e., whether gender interacts with the predictors included in the model to determine behavioural intentions. Testing of interactive effects is in general relatively seldom performed in the context of the TPB (but see Conner & Flesch, 2001; Richard & van der Pligt, 1991). Likewise, we could only identify a fairly small amount of studies that tested whether the TPB components interacted with gender (Bryan et al., 2002; Conner & Flesch, 2001; Mummery et al., 2000; Norman et al., 1998; Taylor et al., 2001; Venkatesh et al., 2000; Wong & Tang, 2001). Studying interaction effects may help identify the workings of different social and psychological processes enabling one to provide better explanations of relations between variables in the TPB (Conner & McMillan, 1999). Moreover, such results might provide useful information when constructing future behavioural change interventions.

Hypothesis

- (i) The TPB components will predict intentions of parents not to smoke indoors in the presence of their children.
- (ii) Moral norms, parent identity, smoker identity, and positive and negative anticipated affect will make unique contributions to the explained variance in intention, after the effects of the TPB components are accounted for. We also expect an interaction between parent identity \times smoker identity, parent identity \times moral norms, and moral norms \times negative anticipated affect in relation to behavioural intention.
- (iii) Finally, to explore whether the intention of men and women not to smoke inside while their children are present is governed by different psychological processes.

Method

Procedure and respondents

The present study was conducted in 2001 in a national sample of 1000 households who had children born in 1998.⁴ Permission was obtained from the Norwegian Data Inspection.

³Theoretically self-identity, moral norms and anticipated emotions should be treated as distinct concepts. It can, however, be useful to examine whether they also operate as differentiated concepts empirically. We therefore performed a principal component analysis of all the items employed to measure the independent variables in the present study. The results from the analysis are presented in the Method section (Table I).

⁴The Norwegian Cancer Society funded the data collection in the present study, and the third author (M. Andersen) was responsible for collecting the data.

The parent/person in charge whose birthday came first after the date on which the household received the questionnaire was instructed to answer the questions. This was to ensure that the sample would include as many men as women. Those who did not live with a partner were instructed to fill in the form themselves. A total of 612 respondents; 353 women ($M=32.17$, $SD=4.78$) and 259 men ($M=35.29$, $SD=5.05$), returned a completed questionnaire. Measures were assessed by means of a structured questionnaire (attitudes, subjective norms, perceived behavioural control, moral norms, smoker identity, parent identity, anticipated affective reactions, and behavioural intentions) among the smokers in the sample ($n=162$). In total 101 women ($M=31.11$, $SD=4.96$) and 61 men ($M=35.14$, $SD=5.59$) reported that they smoked.⁵ In spite of using the birthday criteria to select which of the parents was to answer the questions, women were overrepresented. This is in accordance with a previous research (Lund et al., 1998b). One of the reasons is that children live with their mother in 97% of cases, where the parents are divorced or separated. The percentage of smokers, which represented 26% of the total sample (27% of the women and 24% of the men), was lower than the percentage of smokers in these age groups in Norway, which is reported to be approximately 30% (Statistics Norway, 2003). However, this discrepancy is unlikely to have any effect on the associations among variables, which is the primary concern of the present study.

Measures

Parents' *attitude* towards not smoking indoors while their children are present was measured with nine semantic differential scales (7-point): (A) bad–good, (B) not useful–useful, (C) unfavourable–favourable, (D) wrong–right, (E) foolish–wise, (F) unpleasant–pleasant, (G) unnecessary–necessary, (H) unsatisfying–satisfying, and (I) immoral–moral. The scale had a high internal consistency with Cronbach's alpha (α) being 0.98. The mean value of the nine items was used in the analyses.

Subjective norms were measured with two items: (A) Most people who are important to me think that I should not smoke indoors while my children are present, and (B) people who are important to me wish that I do not smoke indoors while my children are present. The response scale for the items ranged from *Fully disagree* (1)–*Fully agree* (7) ($\alpha=0.93$). The mean value of the two items was used in the analyses.

Perceived behavioural control was measured with four items: (A) For me, it is easy not to smoke indoors while my children are present, *Fully disagree* (1)–*Fully agree* (7), (B) If I try, I can avoid smoking indoors while my children are present, *Very unlikely* (1)–*Very likely* (7), (C) Not to smoke indoors, while my children are present, will for me be, *Very difficult* (1)–*Very easy* (7) and (D) How much control do you believe you have over not smoking indoors while your children are present, *No control* (1)–*Complete control* (7) ($\alpha=0.80$). The mean value of the four items was used in the analyses.

Moral norms were measured with three items: (A) It is morally wrong of me to smoke indoors while my children are present, (B) I feel guilty if I smoke indoors while my children are present, and (C) I get a bad conscience if I smoke indoors while my children are present. All the items were ranged from *Fully disagree* (1)–*Fully agree* (7) ($\alpha=0.91$). The mean value of the three items was used in the analyses.

⁵Three women were later excluded from the data set (see footnote 7).

Smoker identity was measured with two items: (A) I look at myself as a person who smokes, and (B) I'm a typical smoker. The items were ranged from *Fully disagree* (1)–*Fully agree* (7) ($\alpha = 0.84$). The mean value of the two items was used in the analyses.

Parent identity was measured with three items: (A) I'm a typical mother/father, (B) I would feel that I missed out on something if I didn't have any children, and (C) I have strong feelings in relation to being a mother/father. All items were ranged from *Fully disagree* (1)–*Fully agree* (7) ($\alpha = 0.65$). The mean value of the three items was used in the analyses.

Positive anticipated affective reactions were measured with four items: If I smoke indoors while my children are present, I think that I would later feel: (A) satisfied, (B) calm, (C) pleased, and (D) more relaxed. All items were ranged from *Very unlikely* (1)–*Very Likely* (7) ($\alpha = 0.78$). The mean value of the four items was used in the analyses.

Negative anticipated affective reactions was measured with seven items: If I smoke indoors while my children are present, I think that I later would feel: (A) regret, (B) apprehension, (C) anxiety, (D) shame, (E) guilt, (F) anger, and (G) fear. All items were ranged from *Very unlikely* (1)–*Very Likely* (7) ($\alpha = 0.92$). The mean value of the seven items was used in the analyses.

Behavioural intention was measured with three items: (A) I expect that I will not smoke indoors while my children are present, (B) It's likely that I will not smoke indoors while my children are present, and (C) I do not think that I will smoke indoors while my children are present. All items were ranged from *Very unlikely* (1)–*Very likely* (7) ($\alpha = 0.95$). The mean value of the three items was used in the analyses.

Principal component analysis (Table I). A principal component analysis (varimax rotation) of the items employed to measure the independent variables was performed to assess the discriminant and convergent validity of the eight measures. The results revealed that the 34 items could be reduced to eight factors which corresponded to the eight specified predictors. More specifically, the items supposed to measure *attitude* loaded on Factor 1 (factor loadings 0.81–0.96) explaining 34.0% of the variance. The items measuring *negative anticipated affect* loaded on Factor 2 (loadings 0.57–0.89) and explained 16.4% of the variance. Furthermore, the items measuring *moral norms* loaded on Factor 3 (0.75–0.82) explaining 8.7% of the total variance. Items measuring *positive anticipated affect* loaded on Factor 4 (0.64–0.80) and explained 5.9% of the total variance. The items that measured *perceived behavioural control* loaded on Factor 5 (0.60–0.71) explaining 4.6% of the total variance. Items that were included in the *parent identity* scale loaded on Factor 6 (0.60–0.79) and explained 4.1% of the variance. The items measuring *subjective norms* loaded on Factor 7 (0.84–0.89) explaining 3.8% of the variance. Finally, the items that measured *smoker identity* loaded on Factor 8 (0.87–0.88) and explained 3.3% of the total variance.

Of all the 34 items, only one item (regret) loaded on two factors, negative anticipated affect (0.57) and moral norms (0.52). Among the remaining items, only small factor loadings were observed on other factors, the largest being 0.31. There is thus strong support for the contention that the predictors in the present study possess discriminant and convergent validity.

Results

The mean scores and the standard deviations for the full sample, and for women and men, as well as Cronbach's alphas for the measures applied in the present study are presented in Table II.

Table I. Principal component analysis (varimax rotation) of all items included in the following scales: Attitude (ATT), subjective norms (SN), perceived behavioural control (PBC), moral norms (MN), smoker identity (S-ID), parent identity (P-ID), negative anticipated affect (N-AFFECT) and positive anticipated affect (P-AFFECT).

	1	2	3	4	5	6	7	8
ATT-a	0.93	0.09	0.08	-0.09	-0.01	0.14	0.08	-0.05
ATT-b	0.92	0.12	0.05	-0.12	-0.08	0.12	0.04	-0.04
ATT-c	0.94	0.10	0.11	0.08	0.18	0.10	-0.00	-0.02
ATT-d	0.95	-0.01	-0.06	0.13	0.04	0.11	-0.00	-0.04
ATT-e	0.95	0.00	-0.01	0.18	0.09	0.06	0.02	-0.03
ATT-f	0.81	0.16	0.06	0.31	0.19	-0.06	0.03	0.01
ATT-g	0.93	0.11	0.11	0.11	-0.03	0.04	0.09	0.01
ATT-h	0.93	0.10	0.12	0.17	0.21	0.13	0.06	-0.03
ATT-i	0.96	0.11	0.07	0.02	-0.02	-0.01	0.04	-0.01
SN-a	0.10	0.17	0.07	0.02	0.16	0.07	0.89	0.01
SN-b	0.11	0.06	0.19	0.21	0.17	0.08	0.84	0.07
PBC-a	0.06	0.16	0.27	0.23	0.60	0.19	0.23	-0.04
PBC-b	0.15	0.16	0.29	0.02	0.62	0.00	0.15	-0.23
PBC-c	0.13	0.10	0.06	0.31	0.71	0.17	0.07	-0.00
PBC-d	0.01	-0.01	0.30	0.31	0.68	0.02	0.21	0.00
MN-a	0.05	0.14	0.82	-0.06	0.28	-0.02	0.13	-0.08
MN-b	0.14	0.29	0.78	0.21	0.15	0.15	0.07	-0.05
MN-c	0.16	0.24	0.75	0.29	0.14	0.22	0.10	-0.07
S-ID-a	-0.07	-0.11	-0.07	-0.12	-0.10	0.04	-0.04	0.88
S-ID-b	-0.02	-0.12	-0.08	-0.18	-0.06	-0.04	0.12	0.88
P-ID-a	0.12	0.06	-0.04	-0.04	0.27	0.60	-0.03	0.10
P-ID-b	0.19	0.11	0.07	0.14	-0.07	0.75	0.18	0.03
P-ID-c	0.09	0.14	0.23	0.09	-0.01	0.79	-0.00	-0.11
N-AFFECT-a	0.11	0.57	0.52	0.31	0.05	0.29	0.08	-0.07
N-AFFECT-b	-0.12	0.84	-0.07	0.09	-0.19	0.03	-0.08	0.06
N-AFFECT-c	-0.13	0.89	0.01	0.11	-0.19	-0.17	0.06	0.13
N-AFFECT-d	0.11	0.78	0.18	0.23	0.00	0.12	0.21	0.04
N-AFFECT-e	0.03	0.77	0.26	0.28	0.02	0.06	0.08	-0.07
N-AFFECT-f	0.20	0.79	0.31	0.03	-0.07	0.16	0.08	-0.09
N-AFFECT-g	0.11	0.78	0.29	-0.08	-0.03	0.20	0.11	-0.11
P-AFFECT-a	-0.24	-0.02	-0.23	-0.80	0.07	-0.08	-0.18	0.17
P-AFFECT-b	0.10	-0.27	-0.01	-0.68	0.14	-0.05	-0.04	-0.04
P-AFFECT-c	0.06	-0.18	-0.06	-0.67	0.29	0.00	-0.05	-0.12
P-AFFECT-d	-0.06	-0.17	-0.21	-0.64	-0.31	-0.14	-0.13	0.18

Table II shows that Cronbach's alpha was satisfactory for all scales (see Nunnally, 1978). It can be seen that the mean scores of men and women differed for two of the variables. Thus women exhibited significantly higher scores on negative anticipated affect than men (4.88 vs 4.16, $p < 0.01$), and significant lower scores on positive anticipated affect than men (1.62 vs 2.29, $p < 0.001$).

Correlations between the different measures for the full sample are presented in Table III, and correlations for women and men are presented in Table IV. All variables were significantly correlated with behavioural intention ($p < 0.001$), except for attitude. Among women, it is also worth noticing that attitude failed to correlate with any of the other measures.⁶ See Tables III and IV for more details.

⁶Since this is an unusual finding, we did a more detailed analysis of the data to explore whether (i) there was any coding or entry problem, and (ii) whether the data supported the use of parametric statistics (see footnote 7). We failed to identify the source of the low correlation between attitude and the other variables for women.

Table II. Number of items, Cronbach's alpha and mean scores for full sample, and for women and men, of all the variables employed in this study. Means scores for women and men were compared with *t*-tests (two-tailed).

	Number of items	Cronbach's alpha	Mean scores (SD)	
			Full sample (N=159)	Women (N=98) Men (N=61)
Attitude	9	0.98	5.67 (1.99)	5.74 (2.21) 5.57 (2.17)
Subjective norms	2	0.93	6.12 (1.54)	6.01 (1.82) 6.31 (1.27)
PBC	4	0.80	6.41 (1.07)	6.48 (1.01) 6.29 (1.31)
Intention	3	0.95	6.28 (1.38)	6.05 (1.81) 6.40 (1.19)
Moral norms	3	0.91	6.31 (1.34)	6.40 (1.33) 6.07 (1.65)
Smoker identity	2	0.84	4.98 (1.89)	4.91 (2.00) 5.26 (2.10)
Parent identity	3	0.65	6.39 (0.90)	6.12 (0.95) 6.01 (1.07)
Negative anticipated affect	4	0.92	4.61 (1.65)	4.88 (1.70) 4.16 (1.76)**
Positive anticipated affect	7	0.78	1.83 (1.13)	1.62 (1.02) 2.29 (1.45)***

Note: PBC = perceived behavioural control.
 ****p* < 0.001; ***p* < 0.01.

Table III. Correlations between attitude (ATT), subjective norms (SN), perceived behavioural control (PBC), moral norms (MN), smoker identity (S-ID), parent identity (P-ID), negative anticipated affect (N-AFFECT), positive anticipated affect (P-AFFECT) and intention (INT) for full sample (N=159).

	1	2	3	4	5	6	7	8	9
1. ATT	–								
2. SN	0.08	–							
3. PBC	0.29***	0.32***	–						
4. MN	0.17*	0.35***	0.42***	–					
5. S-ID	0.03	0.05	–0.17*	–0.12	–				
6. P-ID	0.22**	0.24**	0.20**	0.44***	0.01	–			
7. N-AFFECT	0.16	0.35***	0.29***	0.51***	–0.12	0.23**	–		
8. P-AFFECT	–0.13	–0.31***	–0.41***	–0.41***	0.22**	–0.29***	–0.32***	–	
9. INT	0.11	0.41***	0.63***	0.54***	–0.25***	0.30***	0.38***	–0.52***	–

****p* < 0.001; ***p* < 0.01; **p* < 0.05.

Table IV. Correlations between attitude (ATT), subjective norms (SN), perceived behavioural control (PBC), moral norms (MN), smoker identity (S-ID), parent identity (P-ID), negative anticipated affect (N-AFFECT), positive anticipated affect (P-AFFECT) and intention (INT) for men (N=61, below diagonal) and women (N=98, above diagonal).

	1	2	3	4	5	6	7	8	9
1. ATT	–	0.07	0.16	0.04	0.11	0.17	0.07	–0.07	0.03
2. SN	0.12	–	0.29***	0.38***	0.01	0.20*	0.43***	–0.25**	0.40***
3. PBC	0.44***	0.49***	–	0.35***	–0.28**	0.14	0.27**	–0.47***	0.63***
4. MN	0.31**	0.35***	0.47***	–	–0.11	0.41***	0.45***	–0.31***	0.53***
5. S-ID	0.05	0.01	–0.01	–0.19	–	0.03	–0.06	0.27**	–0.31***
6. P-ID	0.27**	0.36***	0.26*	0.48***	–0.13	–	0.09	–0.17	0.21*
7. N-AFFECT	0.27*	0.22	0.31**	0.54***	–0.18	0.41***	–	–0.22**	0.33***
8. P-AFFECT	–0.19	–0.52***	–0.34**	–0.45***	0.21	–0.38***	–0.36***	–	–0.60***
9. INT	0.27*	0.63***	0.68***	0.58***	–0.29*	0.54***	0.49***	–0.51***	–

****p* < 0.001; ***p* < 0.01; **p* < 0.05.

Table V. Predicting intention for women and men with attitude (ATT), subjective norms (SN), perceived behavioural control (PBC) (STEP 1), moral norms (MN), smoker identity (S-ID), parent identity (P-ID), and negative and positive anticipated affect (N-AFFECT and P-AFFECT) (STEP 2).

	Women (<i>N</i> =98)				Men (<i>N</i> =61)				<i>t</i> -values
	Adjusted <i>R</i> ²	β	<i>B</i>	SE	Adjusted <i>R</i> ²	β	<i>B</i>	SE	
Step 1									
ATT		-0.07	-0.05	0.05		0.01	0.08	0.07	
SN		0.32***	0.27	0.06		0.42***	0.46	0.12	
PBC	0.60	0.64***	0.99	0.11	0.57	0.45***	0.46	0.13	
Step 2									
ATT		-0.04	-0.03	0.04		-0.09	-0.05	0.05	-0.33
SN		0.20**	0.17	0.06		0.34***	0.37	0.10	1.77
PBC		0.44***	0.69	0.11		0.34***	0.35	0.10	-2.27*
MN		0.29***	0.33	0.09		0.15	0.13	0.08	-1.70
P-ID		-0.01	-0.02	0.11		0.27***	0.37	0.11	2.52*
S-ID		-0.06	-0.05	0.05		-0.20**	-0.13	0.05	-1.27
N-AFFECT		0.04	-0.04	0.06		0.10	0.08	0.06	0.48
P-AFFECT	0.71	-0.21***	-0.33	0.11	0.78	-0.01	-0.01	0.09	2.29*

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Separate regression analyses were performed for women and men to test whether the TPB components (Step 1) and moral norms, smoker identity, parent identity, positive and negative anticipated affect (Step 2) could predict the intentions not to smoke indoors while their children are present. To test the potential moderating effects of gender, we compared the unstandardized beta coefficients for women and men as suggested by Baron and Kenny (1986). Since several of the variables were skewed, we also performed an analysis to test whether the residuals from the regression analyses were normally distributed.⁷ The results from the regression analysis are presented in Table V. Step 1 revealed that PBC was the strongest predictor for both women ($\beta = 0.64$, $p < 0.001$) and men ($\beta = 0.45$, $p < 0.001$), followed by subjective norms ($\beta = 0.32$, $p < 0.001$ for women and $\beta = 0.42$, $p < 0.001$ for men). Attitude failed to predict intention ($\beta = -0.07$, ns and $\beta = 0.01$, ns for women and men, respectively). The TPB components accounted for 60% and 57% (adjusted R^2) of the variance in behavioural intentions for women and men, respectively. Step 2 showed that PBC remained the strongest predictor for women after the inclusion of the extension variables, while for men PBC and subjective norms were equally important in the prediction of intention. Concerning the ability of the extension variables to predict intention, a different pattern was found among women and men. Women's intentions were significantly predicted by moral norms ($\beta = 0.29$, $p < 0.001$ vs $\beta = 0.15$, ns for men)

⁷Royston's (1982) extension of the Shapiro and Wilk's *W* statistic was used to test whether the residuals were normally distributed. A Shapiro-Wilk score which is not significantly different from 1 indicate normality. The analysis showed that the residuals from the regression analysis for men were normally distributed (Shapiro-Wilk score: 0.999), while the women's residuals were skewed. Three respondents located outside 3 standard deviations were identified. Except the fact that the three respondents scored low on intention (2-3) and high on all other variables (6-7), nothing remarkable was found. The results from the regression analysis performed without the three outliers revealed normally distributed residuals (Shapiro-Wilk score: 0.987). We also tested whether the residuals were heteroscedastic (i.e. whether the variance in the residuals were associated with the predicted value) by making a scatterplot of the standardized predicted value of intention and the standardized residuals for women and men. The plots revealed that residuals were homoscedastic. Thus, the results supported use of parametric statistics (Hankins et al., 2000).

and positive anticipated affect ($\beta = -0.21, p < 0.001$ vs $\beta = -0.01$, ns for men), while men's intentions were predicted by parent identity ($\beta = 0.27, p < 0.001$ vs $\beta = -0.01$, ns for women) and smoker identity ($\beta = -0.20, p < 0.01$ vs $\beta = -0.06$, ns for women). Negative anticipated affect failed to predict intentions for both women and men. The extension variables added an additional 11% and 21% (adjusted R^2) explained variance in intentions for women and men, respectively. In addition, three significant gender differences were found: PBC was more strongly related to intentions for women than men ($p < 0.05$), parent identity and intention were stronger related among men ($p < 0.05$), and positive anticipated affect and intention were stronger related among women ($p < 0.05$).

Finally, we performed a regression analysis for the full sample to test whether there was an interaction effect between parent identity and smoker identity, parent identity and moral norms, and negative anticipated affect and moral norms. We used mean-centred scores to minimize the problems of multicollinearity (Aiken & West, 1991). The results are presented in Table VI. Step 2 showed that PBC ($\beta = 0.35, p < 0.001$) was the strongest predictor, followed by subjective norms ($\beta = 0.28, p < 0.001$), moral norms ($\beta = 0.31, p < 0.001$) and smoker identity ($\beta = -0.11, p < 0.01$). The TPB accounted for 56% (adjusted R^2) of the variance in intention and the extension variables added another 14% (adjusted R^2). In Step 3, when the interaction terms were included, PBC, subjective norms, moral norms and smoker identity, remained significantly related to intention. Moreover, two of the interaction terms were significantly related to intention: negative anticipated affect \times moral norms ($\beta = -0.19, p < 0.001$) and parent identity \times smoker identity

Table VI. Hierarchical multiple regression analyses examining the effect of an extended version of the theory of planned behaviour in predicting parents' intentions not to smoke indoors in the presence of their children ($N = 159$).

	Adjusted R^2 (R^2)	F-change	β
Step 1			
Attitude			-0.06ns
Subjective norms			0.37***
Perceived behavioural control	0.56 (0.57)	67.30***	0.54***
Step 2			
Attitude			-0.08ns
Subjective norms			0.28***
Perceived behavioural control			0.35***
Moral norms			0.32***
Smoker identity			-0.11**
Parent identity			0.05ns
Negative anticipated affect			0.07ns
Positive anticipated affect	0.70 (0.72)	15.74***	-0.08ns
Step 3			
Attitude			-0.04ns
Subjective norms			0.27***
Perceived behavioural control			0.32***
Moral norms			0.21**
Smoker identity			-0.12**
Parent identity			0.05ns
Negative anticipated affect			0.04ns
Positive anticipated affect			-0.04ns
Moral norms \times negative anticipated affect			-0.19***
Smoker identity \times parent identity			0.12**
Moral norms \times parent identity	0.75 (0.76)	9.88***	-0.05ns

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

($\beta = 0.12, p < 0.01$). In total, 75% (adjusted R^2) of the variance in intention was explained by this extended TPB model.

We probed the nature of the significant interactions using simple slope analysis (Aiken & West, 1991) by examining the regression lines at three levels of the hypothesized moderators, i.e., the mean level and at one standard deviation above and below the mean. Figure 1 illustrates that when parent identity increased from low, through moderate, to high, smoker identity became a weaker predictor of intentions ($B = -0.15, p < 0.001$; $B = -0.08, p < 0.01$; $B = -0.01, ns$, respectively). Moreover, Figure 2 shows that when negative anticipated affect increased from low, through moderate, to high, the predictive power of moral norms decreased ($B = 0.34, p < 0.001$; $B = 0.21, p < 0.01$; $B = 0.09, ns$, respectively).

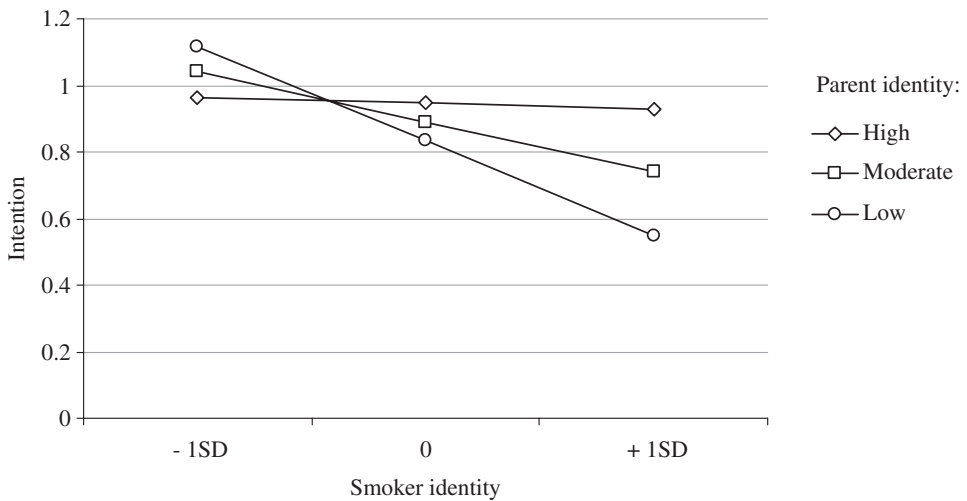


Figure 1. Simple slopes for intentions on smoker identity for low, moderate and high parent identity.

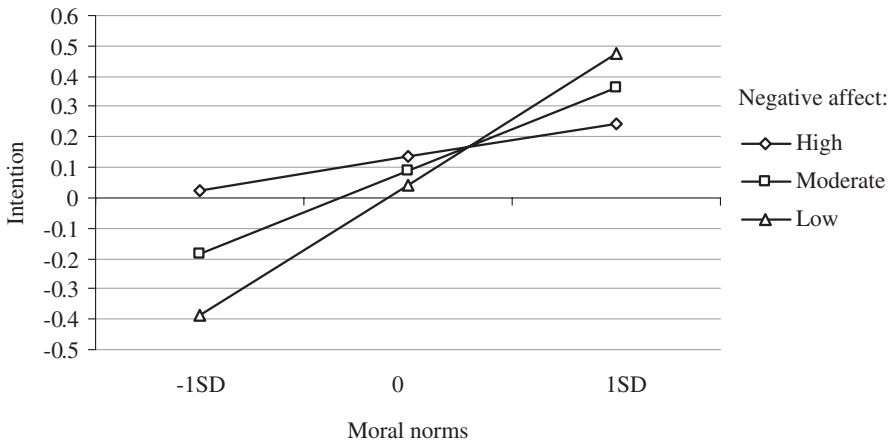


Figure 2. Simple slopes for intentions on moral norms for low, moderate and high negative anticipated affect.

Discussion

As far as our knowledge goes, this is the first study employing the theory of planned behaviour to explore the motivational processes underlying the parents' intentions not to smoke indoors in the presence of their children, and may in this capacity provide novel information for the design of future interventions to protect children from ETS exposure (cf. Gehrman & Hovell, 2003). Furthermore, the study was motivated by the recommendation of Ajzen (1991) to identify predictors (in this instance self-identity, moral norms and anticipated affective reactions) of behavioural intentions and behaviour which contribute to significant proportion of the variance after the TPB constructs have been accounted for, and the idea that the influence of the TPB components might differ in different populations (in this instance women and men). More specifically, in this context we confirmed empirically a number of issues which have received scant attention in the literature hitherto: the behavioural implications of two distinct components of identity, smoker identity and the parent identity; a distinction between positive and negative anticipated affect using principal component analysis and their independent prediction of behavioural intentions; and significant interactions between parent identity \times smoker identity and negative anticipated affect \times moral norms. We also identified significant interactions between gender and three predictors of behavioural intentions. Another strength of the present study is that we tested whether the residuals were heteroscedastic, and whether they were normally distributed. This is seldom done within the framework of the TPB (Hankins et al., 2000). We also performed a principal component analysis of all the items used to measure the independent variables in the study, the results giving strong support for the discriminant and convergent validity of the independent variables applied in the present study. A final merit is that the data derives from a national sample of smoking parents having children at the age of three, and thus the results may apply to a wider audience than is usually the case with samples derived from selected populations.

The present study supports the use of the TPB in relation to parent's intentions not to smoke indoors while the children are present in that the theoretical components explained 56% (adjusted R^2 , Table VI) of the variance in behavioural intentions comparing favourably to the levels of prediction reported in the literature. In a recent meta-analysis of the efficacy of the TPB (Armitage & Conner, 2001), it was observed that the TPB components explained 39% of the variance in intentions.

Moreover, the study provided empirical support to the idea that the TPB might benefit from being extended with moral norms and smoker identity. We could identify only four studies that simultaneously applied these predictors within the framework of the TPB, namely Conner and Flesch (2001) who studied risky sexual behaviour, Evans and Norman (2003) who predicted adolescent pedestrians' road-crossing intentions, Jackson et al. (2003) who predicted physical activity intentions and behaviour, and Moan and Rise (2004) who applied an extended TPB model to predict students' intentions to quit smoking and the making of their quit attempt. Hence, whether these variables should be included in the TPB on a more permanent basis or not can only be answered through extensive research in a broader set of behavioural domains.

As viewed from the perspective of the TPB, one important finding is that both subjective norms and perceived behavioural control retained their importance in the intention formation process after the other predictors had been adjusted for. On the other hand, attitudes failed to play any role in the intention formation process. Hence, the results support Ajzen's (1991) idea that the contribution of attitude, subjective norms, and perceived behavioural control in the prediction of intention may vary across

behaviours and situations. Thus in situations where, for example, attitudes are strongly related to intention, PBC may be less predictive of intentions. Ajzen's (1991) assumption was later supported by Trafimow and Finlay (1996) findings, i.e. subjective norms appear to be especially important within the health domain whereas attitudes toward the behaviour are more important in domain-general studies. The fact that PBC was by far the strongest predictor of intention is in accordance with previous research on smoking behaviour and the TPB (see Godin et al., 1992; Norman et al., 1999). The relatively strong direct effect of PBC ($\beta = 0.35$, Table VI) is however noteworthy considering the tendency towards ceiling effects as indicated by mean scores above 6 on a seven point scale. This finding is consistent with the claims made by Notani (1998) that the accuracy of PBC does not affect its predictive power when it comes to predicting behavioural intentions. The significant predictive power of subjective norms is also worth considering since this predictor is usually the weakest of the three theoretical components (Ajzen, 1991; Armitage & Conner, 2001; Godin & Kok, 1996). In their meta-analysis Armitage and Conner (2001) found that the failure of subjective norms to predict behavioural intentions may primarily be ascribed to the use of single-item measures. The fact that we used a two-item measure of subjective norms with high internal consistency may thus have contributed to the predictive power of subjective norms. Another explanation may be related to the conceptualization of SN in the TPB in terms of a global perception of social pressure from others to perform the behaviour. As argued by Terry and Hogg (1996), such pressures may be latent and not so explicit for most behavioural forms. However, in the present case, it is conceivable that parents perceive a more direct and explicit social pressure, e.g. from their partners, health personnel as well as close friends, not to smoke indoors when their children are present.

The results support the idea that the TPB might benefit from being extended with moral norms and smoker identity (see Table VI) as predictors to provide a better understanding of the intention formation process concerning parents' smoking behaviour in relation to their children. Thus when a parent is convinced that it is morally wrong to smoke indoors while his/her children are present, he/she will be less inclined to do so. Moreover, when a parent describes him or herself as a smoker, the intention not to smoke will be weaker. The results add to a growing body of literature supporting the importance of moral norms and self-identity in the TPB (Conner & Armitage, 1998; O'Keefe, 2002).

In addition to the direct effects mentioned above, we were able to identify two significant interaction effects. The results revealed significant interactions between parent identity and smoker identity, and between negative anticipated affect and the moral norms. A simple slope analysis demonstrated that the effect of smoker identity decreased when parent identity increased from low to high. Thus, the results supported the idea that a strong parent identity might weaken the negative impact smoker identity has on parents' intentions not to smoke indoors in the presence of their children. Furthermore, the simple slope analysis revealed that when negative anticipated affect increased from low to high, the impact of moral norms decreased. Manstead (2000) hypothesized that a strong moral conviction could elicit negative affective reactions if the individual did not act according to his/her moral conviction. However, this assumption is only related to the level of the variables, i.e., a high score on moral norms might lead to a high score on negative affect. Thus, he did not address how different levels of moral norms would influence the relationship between negative affect and intentions (and vice versa). The results from the present study suggest that if parents had a strong anticipation that they would feel regret, guilt etc. after smoking indoors in the presence of their children, the impact of moral norm on intentions was not so strong. On the other hand, when the

anticipation of negative affect was low or moderate, moral norms became more important for the motivation not to smoke in the presence of the children. One possible interpretation of these findings is that *one* of these mechanisms is sufficient (along with the other significant predictors) to motivate parents not to smoke indoors with their children present. However, to draw more concrete conclusions about the above interpretations, further research is needed. The interaction between moral norms \times parent identity was not significant.⁸

Nevertheless, some of the main effects also need to be qualified since there were interactions with gender. For example, parent identity had no direct effect on intentions (see Table VI), while there was an interaction between gender and parent identity on behavioural intention, in terms of an increased role for parent identity in the intention formation process for fathers (See Table V). This indicates that when fathers perceive their parent identity to be strong, they then activate the belief that they should not smoke indoors while their children are present more easily than mothers. One possible explanation for the higher predictive power for fathers is that it may be easier for men to express such an intention simply because they share less of their time with their children, and this might be so, particularly if they have a strong parent identity. This interpretation is also consistent with the idea that men with a strong parent identity state a positive intention as a compensatory strategy for their absence. In addition, women presumably have a more complex representation of their parent identity (cf. Linville, 1987) in the sense that they presumably activate a higher number of associated behaviours in relation to this role identity than men.

Also, the relationship between positive anticipated affective reactions and intentions was stronger among women. The same was the case for perceived behavioural control. These findings imply that it is more likely that women who anticipate having a low degree of positive feelings after smoking indoors in the presence of their children intend not to smoke than men who anticipate the same degree of positive affective reactions. One may speculate that men's perception of positive anticipated affect was a weaker predictor of intentions not to smoke indoors in the presence of their children, simply because it was too weak to predict intention. Thus men's scores on this variable were less extreme than those of women, and extremity may be an indicator of the strength of a measure (see Eagly & Chaiken, 1998). Just as strong attitudes more easily predict subsequent behaviour because they are more clearly defined and held with more certainty; strong perceptions of positive anticipated affect may be more predictive of behavioural intentions (see Eagly & Chaiken, 1993). However, concerning perceived behavioural control, this possible explanation does not apply since the scores of women and men did not differ on this variable. Overall, the TPB explained 71% and 78% (adjusted R^2) of the variance in intentions for women and men, respectively. We were unable to identify any empirical or theoretical work that could contribute to any substantial explanation of the differences regarding the effect of positive anticipated affect and perceived behavioural control on women's versus men's intentions not to smoke in the presence of their children, and thus recommend that future research should address this issue.

The present study has a number of practical implications for interventions to encourage parents not to expose their children to ETS, in terms of the predictive power of the extended TPB model (cf. Hardeman et al., 2002). For example, the data relating to subjective norms

⁸We would like to thank a reviewer of an earlier version of this article for suggesting to test these interaction effects.

indicate that bringing social pressure to bear upon the parents is likely to have some success, while efforts to change attitudes through persuasive campaigns are likely to meet with less success, considering the data relating to attitudes. If one were to design a campaign based on the results from the total sample, perceived behavioural control stood out as the most important factor in the intention formation process, and should therefore be given priority as a target in a persuasive communication. However, which specific control aspects that should be focused on in a future intervention still need to be identified for this particular behaviour. According to the TPB account, perceptions of control are considered to be derived both from internal (e.g. skills, knowledge, self-efficacy) and external (e.g. opportunities, obstacles) factors. However, in the present context, it may be more relevant to address the internal factors. For example, a persuader may attempt to enhance self-efficacy by including role-playing or mental-rehearsing of relevant behavioural aspects by providing role models smoking outside, or by providing simple encouragements (cf. O'Keefe, 2002).

Nevertheless, the findings also suggest that interventions might benefit from being gender specific in that women's intention formation was more strongly guided by perceived behavioural control and positive anticipated affect, while men's intentions were to a larger extent governed by the parent identity variable. When it comes to anticipated affect, there is good evidence that the anticipated affect can be influenced, primarily by increasing the salience of such post-behavioural emotions. Richard et al. (1996b) and Sheeran and Orbell (1999) found consequent effects on intention and behaviour simply by inducing people to think about such feelings. Thus, one effective way of influencing anticipated emotions seem to be inviting the receivers to consider how they would feel if they followed (or did not follow) a particular course of action, e.g., smoking or not smoking indoors while their children are present. Another viable strategy suggested by O'Keefe (2002) may be that receivers will experience a given emotion if they smoke indoors with their children present, e.g., that they would feel guilty. In relation to parent identity, it may be relevant to increase its salience, for example, by showing vivid pictures of fathers who smoke in the presence of children and in a following sequence showing pictures of smoking fathers who are careful of avoiding this.

Potential limitations of the present study

In interpreting the above findings there are a number of potential methodological problems with the present study which should be noted. First, we applied a structured questionnaire as recommended by Ajzen and Fishbein (1980) under the assumption that individuals possess relatively stable set of mental representations, e.g., a positive or negative evaluation of a specific behaviour. Some studies have indicated that responses vary as a function of the format of the questionnaire (e.g. Budd, 1987; Sheeran & Orbell, 1996), while others (Armitage & Conner, 1999b) have not confirmed this finding. On the other hand, of more relevance for the present study, Armitage and Conner (1999b) found that response format did not moderate the relations between the theoretical components, but affected the pattern of predictions. However, it is not possible to say whether this may have been a problem in the present study. A second potential threat to the reliability and validity of the TPB measures is social desirability. Sheeran and Orbell (1996) found some effect of social desirability on the reliability of the measures, and the correlations between the components in the Protection Motivation Theory, while Beck and Ajzen (1991) and Armitage and Conner (1999b) could not confirm this finding in their studies of dishonest behaviour and food choice. Armitage and Conner (1999b) therefore suggested that Sheeran and Orbell's (1996) findings were artifactual.

Finally, the fact that we do not have a compiled data on subsequent behavioural performance is, of course, a limitation in the present study. Nevertheless, since the particular behaviour – parents' avoiding smoking indoors while their children are present – has received scant research attention in general, as well as specifically, in terms of not having been studied within the framework of the TPB, this specific behaviour deserved more research attention. Given the importance of ETS as a current public health issue, this study has provided useful information about the motivational processes that underlie the decisions of parents not to smoke indoors in presence of their children. Furthermore, the data is derived from a national sample of smokers, and consequently generalize to a wider population of smoking parents (i.e., Norwegian parents that have children born in 1998) than in studies on selected populations. Finally, intentions have been found to correlate strongly with behaviour across a wide variety of behavioural domains. In a meta-analysis of the meta-analyses of the intention–behaviour relationship Sheeran (2002) reported an average correlation of 0.53.

Conclusions

First, the present study supports the application of the TPB in relation to parents' intentions not to smoke indoors while their children are present. Second, we found that only one of the two distinct components of identity, namely smoker identity, had a direct effect on the parents' decisions not to smoke indoors in the presence of their children. Third, the present study also supported the inclusion of moral norms. Fourth, we found a significant interaction effect between parent identity and smoker identity, and negative anticipated affect and moral norms. Finally, the present study revealed gender differences in the predictive pattern of three independent variables: perceived behavioural control, positive anticipated affect, and parent identity.

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Paper II

Quitting Smoking: Applying an Extended Version of the Theory of Planned Behavior to Predict Intention and Behavior¹

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This study examined the ability of the theory of planned behavior (TPB) to predict students' intentions to quit smoking and the subsequent behavior 6 months later. In addition, the impact of past behavior, moral norms, self-identity, group identity, and positive/negative anticipated affect was examined. The intention-behavior relationship was examined by dividing the sample in four subgroups: inclined actors/abstainers and disinclined actors/abstainers. Analyses were based on data from a prospective sample of 698 smokers. Attitude, subjective norms, and perceived behavioral control accounted for 36% (adjusted R^2) of the variance in intentions. Moral norms, positive anticipated affect, group identity, and past behavior added 9% (adjusted R^2) to the explained variance in intention, beyond the effect accounted for by the TPB components. Subsequent behavior was predicted by intentions (adjusted $R^2 = .12$). Past behavior, moral norms, self-identity, and the Past Behavior \times Intention and Moral Norm \times Negative Affect interactions explained an additional 9% (adjusted R^2) of the variance in behavior. Inclined abstainers constituted the main source of the discrepancy between intention and behavior.

The negative consequences of smoking are well documented and widely accepted (e.g., Royal College of Physicians, 1983). The prevalence of smoking in Norway has fallen sharply since the peak year of 1975 (National Council on Tobacco and Health, 1999). However, 26% of the population still are daily smokers and 11% smoke occasionally (Statistics Norway, 2004). Cigarette smoking constitutes the largest preventable cause of impaired public health and premature death in Norway. Tobacco alone causes 30% of all cancer deaths and 17% of all deaths (Norwegian official report, 1997). However, recent data from a longitudinal study

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shows that by quitting smoking at the age of thirty, it is possible to gain 10 years of life expectancy (Doll, Peto, Boreham, & Sutherland, 2004).

Obviously, only providing smokers with information about the health hazards of smoking is not sufficient to ensure that they quit smoking (e.g., Lund & Rise, 2002; Wakefield & Chaloupka, 2000). Effective interventions need to be informed by theories which are able to account for the formation of a quitting intention as well as to account for the self-regulation processes that are involved in translating these intentions into action (e.g., Jones et al., 2001; Rothman, Baldwin, & Hertzell, 2004; Sheeran, 2002).

One social cognitive theory that has been frequently adopted to explain health behaviors is the Theory of Planned Behavior (TPB; Ajzen, 1991). According to the TPB, the proximal determinants of behavior are the intentions to engage in the behavior and perceived behavioral control (PBC) over the behavior. Behavioral intentions are assumed to "...capture the motivational factors that influence a behavior, they are indicators of how hard people are willing to try, of how much effort they are planning to exert, in order to perform the behavior" (Ajzen, 1991, p. 181). PBC is defined as the person's own perception of how easy or difficult it is to execute the behavior and is assumed to influence intention formation. In addition, to the extent that PBC gives an accurate picture of actual control, it is predicted to directly influence behavior. Moreover, Ajzen suggested that in conditions of complete volitional control, the intention-behavior relationship would be optimal, and PBC would not exert any influence on this relationship. However, when behavior is not under complete volitional control, PBC should moderate the intention-behavioral relationship. Under such conditions, greater PBC should be associated with stronger intention-behavior relationships. Moan and Rise (2005b) found support for this assumption in predicting smoking reduction among adolescents. In a meta-analysis of the TPB, Armitage and Conner (2001) found a significant interaction between PBC and intention in 9 of 19 (47%) studies. Intentions are also determined by two other factors: (a) *attitude*, that is, a positive or negative evaluation of the behavior; and (b) *subjective norms*, which refer to the individual's perception that important others in his or her social environment wish or expect him or her to behave in a certain way.

Previous research has demonstrated that the TPB is quite successful in predicting a wide range of health related behaviors (e.g., Armitage & Conner, 2001; Godin & Kok, 1996). The TPB has also been used to account for smoking behaviors (see McMillan and Conner, 2003, for review). McMillan and Conner (2003) reported that across a number of studies on smoking behaviors the TPB components accounted for on an average 48% of the variance in intentions but less than 10% of the variance in behavior. This indicates that the TPB is quite successful in accounting for the intention formation process, while it is less successful in accounting for the translation of intentions into action (e.g., Jones et al., 2001;

Sheeran, 2002). As noted by Fishbein and Ajzen (2005) this is not so strange considering that the TPB is primarily a theory of behavioral intentions.

Four studies have explored the usefulness of the TPB to predict intentions to quit smoking (Falomir & Invernizzi, 1999; Hu & Lanese, 1998; Norman, Conner, & Bell, 1999; Willemsen, de Vries, Breukelen, & Oldenburg, 1996). The results from these studies showed that the TPB components accounted for 21% to 49% (average = 30%) of the variance in quitting intentions, a figure that is lower than the figure obtained in a meta-analysis of the TPB (cf. Armitage & Conner, 2001). Moreover, two studies have applied the TPB to study subsequent behavior in terms of the making of a quit attempt (i.e., Johnston, Johnston, Pollard, Kinmonth, & Mant, 2004; Norman et al., 1999). The proportion of variance explained in behavior by the TPB components was, however, not reported in these studies.

However, considering the number of difficulties smokers face when attempting to enact their quitting intentions, the intention–behavior discrepancy may be quite substantial in this particular behavior domain (e.g., Lund & Rise, 2002). In his seminal review on the intention–behavior relation, Sheeran (2002) outlined a number of variables that determine how well intentions predict behavior and why there is a discrepancy between them. In this study we explore some of these issues in the area of quitting smoking, mainly using past behavior as an organizing framework. In addition, we wanted to explore the intention formation process more carefully when it comes to intention to quit smoking since there are few studies in this particular area and since traditional extension predictors only have received limited attention in this context. Moreover, only a few studies have applied the current predictors, namely past behavior, self-identity, moral norms, and anticipated affective reaction, simultaneously within the framework of the TPB (cf. Conner & Flesch, 2001; Evans & Norman, 2003; Jackson, Smith, & Conner, 2003; Moan, Rise, & Andersen, 2005), and none of these studies concerned smoking cessation.

Extending the TPB

The history of the role of *past behavior* in the TPB is controversial (e.g., Ajzen, 2002b; Bamberg, Ajzen, & Schmidt, 2003; Conner & Armitage, 1998; Ouellette & Wood, 1998; Rhodes & Courneya, 2003; Verplanken & Aarts, 1999). First, a number of studies have shown that past behavior predicts intentions, beyond the effect accounted for by the TPB components (e.g., Conner & Armitage, 1998; Ouellette & Wood, 1998). The impact of past behavior has been supported in three studies that have applied the TPB to predict quitting intentions (cf. Falomir & Invernizzi, 1999; Hu & Lanese, 1998; Willemsen et al., 1996). The residual effect of past behavior may indicate that factors in addition to the TPB components influence the behavioral intention in question (e.g., Conner &

Armitage, 1998). The idea is that the effects of these additional predictors are reflected in measures of past behavior provided that they remain stable over time. Consistent with this reasoning, Falomir and Invernizzi (1999) found that the impact of past behavior on quitting intentions became nonsignificant when self-identity was included in the model.

A second typical finding is that past behavior also can have a direct effect on future behavior, beyond the effects of the TPB components (see Conner & Armitage, 1998; Ouellette & Wood, 1998, for meta-analytic reviews). One study has previously tested and found support for a direct relationship between past quitting attempts and the making of an attempt to quit smoking (cf. Norman et al., 1999). Typically, this finding has been taken to imply that the particular behavior is partly under direct control of the situation—that is, that the behavior habituates with repeated performances, suggesting that frequency of past performances of the behavior is an indicator of habit strength (e.g., Aarts, Verplanken, & Van Knippenberg, 1998; Oullette & Wood, 1998).

In terms of quitting smoking, habit strength in a strict sense is not likely to be the most obvious explanation. Although quite a number of people try to quit smoking several times, it is unlikely that they make a habit of it. On the contrary, previous quit attempts rather represent a way of trying to *break* a more or less established habit; smoking. Nevertheless, it is reasonable to expect that prior positive experiences with the behavior will increase the probability that the behavior will be repeated on future occasions, that is, persons who have attempted to quit smoking might have experienced improved personal finance, physical condition, breath, taste, and so forth, and thus, compared to those who never have tried to quit might be more motivated to try again. Moreover, the more often a smoker has tried to quit smoking in the past (this is equivalent to saying that it has become under stimulus control), the less the actual quitting should be guided by intentions to quit (cf. Triandis, 1980). Thus, we expect there to be an interaction between past behavior and intention in predicting subsequent behavior.

From a reasoned action perspective (Ajzen, 2001), a more likely explanation of the residual effect of past behavior on future behavior is that the factors controlling behavior in the past—that is, intentions and PBC—have changed. To the extent that intentions and PBC are unstable, they are not able to influence behavior so strongly (cf. Conner, Sandberg, McMillan, & Higgins, in press), and thus intention stability and PBC stability might moderate the past behavior–behavior relation (cf. Ajzen, 2002b; Conner, Sheeran, Norman, & Armitage, 2000). Another explanation is that when it comes to quitting smoking, smokers may have unrealistic perceptions of behavioral control also after gaining considerable experience. Thus smokers may have strong intentions to quit smoking, but reality may intervene and prevent them from carrying out their intentions. To the extent this was true in the past, and continues to be so later on, past behavior may predict future behavior beyond the effects of intentions and PBC. However, these

ideas were not possible to explore in this study. Finally, the residual effect of past behavior on subsequent behavioral performance might reflect the omission of other factors. In the present study we have the possibility to test the impact of some of these variables: self-identity, group identity, moral norm, and anticipated affective reactions.

One study has previously tested the impact of *self-identity*—that is, how one describes oneself using large-scale social categories (e.g., “I am a smoker”)—in relation to intentions to quit smoking in the context of the TPB (cf. Falomir & Invernizzi, 1999). However, self-identity has been shown to add to the prediction of intentions, beyond the TPB components, across a wide range of behaviors (see Rise, Sheeran, & Skalle, 2005, for meta-analysis). Self-identity reflects the extent to which behavioral performance is embedded into the self-concept. Thus the more or longer one smokes, the more smoking has become a key component of the smokers’ self-concept, and the more strongly motivated they become to maintain their self-concept by continuing to smoke, and by implication, the less inclined they should be to quit smoking. Some authors have also suggested that there is an interaction between self-identity and past behavior (Charng, Piliavin, & Callero, 1988). The idea is that a particular behavior that is performed frequently in the past (e.g., smoking) becomes internalized as an important sense of self. Based on this idea, the self-identity–intention relation is expected to be stronger for individuals who have smoked frequently in the past than for those who have smoked occasionally (Charng et al., 1988). The direct impact of self-identity on behavior, beyond the effect accounted for by the TPB components, have also been supported in some studies (e.g., Jackson et al., 2003; Moan & Rise, 2005b; Sparks, 2000). The present study extends the study of Falomir and Invernizzi (1999) by examining the possible interaction between past behavior and self-identity, and by testing whether self-identity can predict subsequent behavior directly.

Moreover, while Falomir and Invernizzi (1999) found that self-identity predicted quitting intentions above the TPB components, a closer inspection of their measure revealed that it was a mixture of self-description as a smoker (“to what extent do you feel as a smoker?”) and identification with the group of smokers (“to what extent do you identify with the group of smokers?”). These two items arguably tap into different aspects of self-understanding (Rise & Moan, 2004).

Thus while self-descriptions (or self-identity) constitute “me-identification” and reflect individual-level identification, identifications with a group constitute “we-identifications” reflecting identification at the collective level (Thoits & Virshup, 1997). Consequently it is possible that the direct effect of self-identity in the above study partly reflects an influence from *group identity*. The concept of group identity derives from social identity theory (Tajfel & Turner, 1979). A basic tenet of social identity theory is that a social category (e.g., the group of smokers) to which people feel they belong (or fall into) also provides a source of

self-definition, and to the extent that it is salient, a group identity may determine how one feels, thinks, and behaves. The increase in regulatory measures directed at smoking along with the increased emphasis on antismoking campaigns have presumably enhanced the social categorization into smokers and nonsmokers, that is, strengthened the salience of the identity of the group of smokers (cf. Falomir & Invernizzi, 1999). Furthermore, people by and large have a basic need for a positive view of themselves and their groups, but smokers are aware of the fact that they find themselves in a socially stigmatized position, thus having a negative identity. Hence smokers have a need to raise their self-esteem, and the lower the degree of group identification the more they choose to leave their group and join a more valued group, that is, nonsmokers. On the other hand, smokers with a strong sense of group identification will more likely tend to defend their identity by engaging in cognitive restructuring, social creativity, or various types of collective action (cf. Falomir & Invernizzi, 1999). In the present study, we adapted a theoretically derived measure of group identity developed by Ellemers, Kortekaas, and Ouwerkerk (1999; see Rise & Moan, 2004, for further details). The predictive power of group identity in relation to the TPB has been explored in only one study before (Rise & Moan, 2004).

Moral norms of the society at large become internalized during adolescence, and may thus be a source of motivation needless of much deliberation about the costs and benefits of the particular behavior and the opinions of valued others (cf. Manstead, 2000). The idea that moral norms (i.e., “*personal feelings of moral obligation or responsibility to perform, or refuse to perform, a certain behavior*”; Ajzen, 1991, p. 199) can predict intentions and behaviors, beyond the impact of the TPB, has been supported across a wide range of behavioral domains (e.g., Beck & Ajzen, 1991; Conner & Armitage, 1998; Godin, Conner, & Sheeran, in press; Manstead, 2000) including smoking (cf. Godin et al., in press; McMillan, Higgins, & Conner, 2005; Moan & Rise, 2005a, 2005b; Moan et al., 2005). However, none of the latter studies concerned smoking cessation.

According to the TPB people are logical and rational in their decision-making, systematically using the information available to them (Richard, de Vries, & van der Pligt, 1998). Notwithstanding, *anticipated affective reactions* of a particular behavior, that is, feelings about having performed the target behavior, have been shown to predict intentions beyond the TPB components in a number of studies (e.g., Conner & Flesch, 2001; Conner et al., in press; Moan et al., 2005; Richard, van der Pligt, & de Vries, 1996a, 1996b; Sheeran & Orbell, 1999). Previous research addressing anticipated affective reactions in the context of the TPB have mainly focused on negative anticipated affect (i.e., anticipated regret; see Conner et al., in press, for review). However, Perugini and Bagozzi (2001) provided evidence that positive and negative anticipated affect are distinct concepts in relation to prediction of goal-directed behaviors. Moan et al. found that the same distinction holds for prediction of specific behaviors (parents’

intentions not to smoke indoors in the presence of their children) in the context of the TPB. In this study we want to explore whether positive and negative affect predict intentions to quit smoking independently. We also want to test whether the two constructs can have a direct effect on behavior, and whether they moderate the intention–behavior relation. Three papers have previously addressed the latter issue (cf. Abraham & Sheeran, 2003; Conner et al., in press; Sheeran & Orbell, 1999). Conner et al. found support for the moderating role of anticipated regret on the intention–behavior relationship in relation to smoking initiation among young adolescents.

Negative anticipated affect has been linked to moral norms (e.g., Conner & Armitage, 1998; Manstead, 2000; O’Keefe, 2002). In the context of smoking cessation, the idea is that if an individual strongly holds the belief that it is morally wrong to smoke, one may expect the individual to experience regret and guilt if s/he does not live up to her/his personal standards of behaving. Thus, we will test whether there might be an interaction between moral norms and negative anticipated affect, both in predicting intentions and behavior. To our knowledge, one study has previously tested and found empirical support for the idea that there might be an interaction between moral norms and negative anticipated affect (i.e., Moan et al., 2005).

Intention–Behavior Consistency/Inconsistency

Sheeran (2002) has argued that traditional measures of effect size do not tell the whole story of the intention–behavior relation. In order to provide a clearer picture of the sources of consistency/discrepancy between intention and behavior, we will decompose intention into a 2×2 (Positive Intention vs. Negative Intention \times Performance vs. Nonperformance of the Behavior) matrix (McBroom & Reed, 1992; Orbell & Sheeran, 1998). This procedure divides the sample into four subgroups: inclined actors/abstainers and disinclined actors/abstainers, making it possible to attribute the intention–behavior consistency to two groups; participants with positive intentions who subsequently act (*inclined actors*) and participants with negative intentions who do not act (*disinclined abstainers*). Of greater importance, this method enables us to identify which group is responsible for the gap, that is, participants with positive intentions who fail to act (*inclined abstainers*) and participants with negative intentions who perform the behavior despite of their intentions not to do so (*disinclined actors*). Sheeran (2002) examined the intention–behavior consistency in six studies (condom use \times 2 studies, cancer screening \times 3 studies, and exercise \times 1 study) and found that the lack of consistency between intentions and behavior mainly was caused by inclined abstainers. Thus, he concluded that those participants who failed to act upon their positive intentions constituted the main source of the intention–behavior gap. However, further research on a broader set of behavioral forms is needed to

determine the extent of generality of this pattern. In the present study we will contribute to this research by exploring the relation between students' intentions to quit smoking and the subsequent behavioral performance 6 months later.

However, in the area of cancer screening Orbell and Sheeran (1998) were not able to discriminate disinclined abstainers from the three other groups using variables derived from protection motivation theory. Likewise, Sheeran (2002) was not able to discriminate between inclined actors and abstainers when applying the TPB to study exercise. It might be worthwhile to extend this analysis using a broader set of predictors as well as a new and difficult behavior, quitting smoking. For example, an idea that might be relevant in relation to smoking cessation is the notion that those who have strong intentions and fail to act on them, have lower perceptions of control than those with a similar level of intention who succeed to enact them (Ajzen, 2002a).

Specifically, it is hypothesized that (a) the TPB components will predict intentions to quit smoking and the subsequent behavior, and that (b) past behavior, moral norms, self-identity, group identity, and positive/negative anticipated affect will predict intentions and behavior, beyond the effect accounted for by the TPB components. We expect there to be an interaction between past behavior and self-identity, and moral norms and negative anticipated affect in relation to intentions and behavior. In relation to behavior, we also expect there to be an interaction between intention and PBC, intention and past behavior, and intention and negative/positive affect. Finally, (c) we will attempt to identify the sources of consistency/discrepancy between intentions and behavior by identifying four subgroups: inclined actors/abstainers and disinclined actors/abstainers. We will also assess which predictors discriminate best between the four subgroups using discriminant analysis.

Method

Participants and Procedure

University students in Norway voluntarily completed questionnaires sent via electronic mail at two time points separated by 6 months (November 2002 and May 2003). The participants were recruited on the Internet when visiting an online national newspaper (<http://www.vg.no>). This was possible due to a technology which ensured that only users of computers that were registered at universities in Norway automatically received a pop-up that gave information about the survey. Only participants who smoked on a daily basis (i.e., at least one cigarette a day) were included in the study. However, the sampling procedure did not assure representativeness of students in Norway who are daily smokers, and hence no attempt at generalizing the findings should be made. The aim of the

present study was to study the relationship between variables, not levels of smoking-related variables.

The Time 1 questionnaire was structured and contained measures of attitude, subjective norm, PBC, moral norms, self-identity, group identity, positive/negative anticipated affect, and intentions. Behavior was measured in the Time 2 questionnaire. The participants wrote their e-mail address in the Time 1 questionnaire if they agreed to attend the second survey 6 months later, and constructed a self-generated individual identity code. In total, 961 respondents completed the Time 1 questionnaire; 344 women ($M = 26.18$, $SD = 8.09$) and 617 men ($M = 26.20$, $SD = 8.21$). Of those who participated at Time 1, 698 (73%) respondents returned the Time 2 questionnaire, 6 months later; 245 women ($M = 26.68$, $SD = 7.43$) and 453 men ($M = 26.77$, $SD = 7.28$). The individuals who participated at both time waves were matched through use of the self-generated individual identity code. The analyses in the present study are based on data from a prospective sample of 698 participants.

Among the 698 participants, 206 (29.5%) reported smoking 1 to 4 cigarettes a day at Time 1, 193 (27.6%) smoked 5 to 9 cigarettes, 160 (23%) smoked 10 to 14 cigarettes, 92 (13.2%) smoked 15 to 19 cigarettes, 35 (5%) smoked 20 to 29 cigarettes, and 12 (1.7%) reported smoking 30 cigarettes or more on a daily basis. Moreover, the participants had on average been smoking for 8.78 years ($SD = 7.05$, Time 1). At Time 2 (i.e., 6 months later), 152 (21.8%) had quit smoking, 172 (24.6%) smoked 1 to 4 cigarettes, 147 (21%) smoked 5 to 9 cigarettes, 132 (19%) smoked 10 to 14 cigarettes, 62 (8.9%) smoked 15 to 19 cigarettes, 27 (3.9%) smoked 20 to 29 cigarettes, and 6 (0.8%) reported smoking more than 30 cigarettes daily. There were no significant differences on the TPB and the extension variables between participants who completed the Time 1 measures only and participants who completed both waves of data collection.

Measures

Attitude toward quitting smoking was measured with 4 items using a 7-point semantic differential scale (ranging from -3 to +3): "To quit smoking during the next 6 months will for me be" (A) *bad-good*, (B) *not useful-useful*, (C) *unfavorable-favorable*, (D) *wrong-right*. The scale had a high internal consistency ($\alpha = .93$). *Subjective norm* was measured with 3 items. "People who mean a lot to me...": (A) "...think that I should quit smoking during the next 6 months," (B) "...would wish that I quit smoking during the next 6 months," and (C) "...think that quitting smoking is a good thing." All the items had response categories ranging from 1 (*completely disagree*) to 7 (*completely agree*; $\alpha = .90$). *Perceived behavioral control* was measured with 3 items: (a) "During the next 6 months I can easily quit smoking, if I want to," 1 (*very unlikely*) to 7 (*very likely*); (b) "If I wanted to, I could easily quit smoking during the next 6 months," 1

(*completely wrong*) to 7 (*completely right*); (c) "How much control do you have over quitting smoking during the next 6 months?", 1 (*no control*) to 7 (*complete control*; $\alpha = .89$). *Moral norms* were measured with 3 items: (a) "It is morally wrong of me to smoke," (b) "I feel quilt if I smoke," and (c) "I get a bad conscience if I smoke." The response categories were ranged from 1 (*completely disagree*) to 7 (*completely agree*; $\alpha = .90$). *Self-identity* as a smoker was measured with 3 items: (a) "I look at myself as a person who smokes," (b) "I'm a good example of a person who smokes," and (c) "I first and foremost look at myself as a nonsmoker." The response categories were ranged from 1 (*fully disagree*) to 7 (*fully agree*). The last item was reversed ($\alpha = .80$). *Group identity* was measured with 3 items: (a) "I rather would not tell that I belong to the group of smokers," (b) "I dislike belonging to the group of smokers," and (c) "I would rather belong to the group of nonsmokers." The response categories were ranged from 1 (*completely disagree*) to 7 (*completely agree*; $\alpha = .79$). *Negative anticipated affect* was measured with 8 items: "If I try to quit smoking during the next 6 months, and fail, I afterwards will feel" (a) angry, (b) shameful, (c) sad, (d) guilty, (e) disappointed, (f) like a failure, (g) depressed, and (h) worried. All the response categories were ranged from 1 (*very unlikely*) to 7 (*very likely*; $\alpha = .93$). *Positive anticipated affect* was measured with 5 items: "If I try to quit smoking during the next 6 months, and succeed, I afterwards will feel" (a) happy, (b) satisfied, (c) proud, (d) relief, (e) capable, all ranging from 1 (*very unlikely*) to 7 (*very likely*; $\alpha = .91$). *Intentions* were measured with 4 items: "During the next 6 months..." (a) "I intend to quit smoking," (b) "I will try to quit smoking," (c) "I plan to quit smoking," and (d) "I will quit smoking." All response categories were ranged from 1 (*very unlikely*) to 7 (*very likely*; $\alpha = .95$). *Past behavior* was measured with 1 item: "How many times have you tried to quit smoking?" *Behavior* was measured in the Time 2 questionnaire with 3 items: (a) "Have you tried to quit smoking during the past 6 months?," (b) "Have you tried to reduce your smoking during the past 6 months?," and (c) "Have you quit smoking during the past 6 months?" *No* was coded as 1 and *Yes* as 2 ($\alpha = .72$).

Cronbach's alpha was satisfying for all scales (Nunnally, 1978). The mean value of the items was computed for each scale and used in further analyses (Table 1).

A principal component analysis (varimax rotation) of the items employed to measure the independent variables was performed to assess the discriminant and convergent validity of the nine measures (Table 2). The results revealed that the 36 items could be reduced to nine factors that corresponded to the eight specified predictors and behavioral intentions. More specifically, the items measuring *negative anticipated affect* loaded on factor 1 (factor loadings .63 to .86). The items measuring *PBC* loaded on factor 2 (.79 to .86), and the items measuring *positive anticipated affect* loaded on factor 3 (.75 to .84). Items measuring *intentions* loaded on factor 4 (.83 to .87) and the items that measured *attitude* loaded on

Table 1

Correlations, Cronbach's Alpha (α), Mean Scores (M), and Standard Deviations (SD)

	1	2	3	4	5	6	7	8	9	10	11
Attitude (1)	–										
Subjective norm (2)	.49***	–									
PBC (3)	-.12***	-.07	–								
Moral norms (4)	.36***	.33***	-.01	–							
Self-identity (5)	.09**	.08**	-.37***	-.18***	–						
Group identity (6)	.35***	.32***	.14***	.52***	-.36***	–					
Negative affect (7)	.26***	.23***	.03	.38***	-.13***	.41***	–				
Positive affect (8)	.68***	.45***	-.16***	.35***	.13***	.37***	.31***	–			
Intention (9)	.56***	.37***	.13***	.40***	-.07	.47***	.30***	.48***	–		
Past behavior (10)	.16***	.05	-.07	.11**	-.00	.00	.04	.12**	.17***	–	
Behavior (11)	.29***	.20***	.04	.19***	.09**	.20***	.05	.23***	.34***	.10**	–
α	.93	.90	.89	.90	.80	.79	.93	.91	.95	–	.72
M	1.52	5.20	4.32	2.86	5.13	3.53	3.18	5.31	3.85	3.14	1.47
SD	1.86	1.66	1.54	1.63	1.57	1.75	1.48	1.61	2.02	9.19	0.34

Note. N = 698. PBC = perceived behavioral control.
 p < .01. *p < .001.

Table 2

Principal Component Analysis (Varimax Rotation) of the Items Employed to Measure the Independent Variables

	1	2	3	4	5	6	7	8	9
Attitude-a	.07	-.12	.41	.26	.68	.13	.09	.04	.11
Attitude-b	-.00	-.03	.21	.30	.72	.11	.08	.06	.12
Attitude-c	.10	-.03	.26	.12	.81	.15	.07	.03	.13
Attitude-d	.08	-.02	.29	.08	.80	.17	.06	-.04	.15
Subjective norm-a	.14	-.04	.17	.19	.12	.86	.13	.07	.09
Subjective norm-b	.14	-.07	.20	.18	.14	.86	.16	.06	.06
Subjective norm-c	.09	-.01	.20	.08	.23	.77	.06	-.02	.11
PBC-a	.08	.81	-.10	.04	-.06	-.00	.04	-.14	.14
PBC-b	.04	.86	.02	.07	-.00	-.02	.01	-.09	.15
PBC-c	-.00	.79	-.20	.01	-.13	-.09	-.01	-.17	.13
Moral norms-a	.21	-.01	.09	.08	.17	.14	.70	-.05	.05
Moral norms-b	.20	-.03	.05	.15	.03	.07	.88	-.08	.11
Moral norms-c	.24	-.02	.07	.21	.06	.13	.83	-.12	.09
Self-identity-a	-.06	-.13	.12	-.06	.10	.10	-.04	.88	.07
Self-identity-b	-.06	-.22	.13	.02	-.02	.02	-.01	.84	.11
Self-identity-c	-.07	-.23	.14	-.03	.01	-.03	-.19	.72	.13
Group identity-a	.11	.22	.25	.18	.11	.19	.07	.38	.83
Group identity-b	.08	.16	.18	.08	.13	.18	.01	.41	.79
Group identity-c	.19	.09	.23	.04	.12	.08	.03	.40	.77
Positive affect-a	.15	-.02	.84	.21	.23	.11	.08	.04	.11
Positive affect-b	.18	-.06	.80	.25	.25	.12	.09	.05	.08
Positive affect-c	.15	-.11	.83	.12	.25	.15	.07	.07	.03
Positive affect-d	.19	-.12	.75	.24	.18	.12	.18	.05	.09
Positive affect-e	.15	-.10	.81	.10	.23	.20	.09	.08	.12

(table continues)

Table 2 (Continued)

	1	2	3	4	5	6	7	8	9
Negative affect-a	.78	.08	.10	.04	.04	.07	.03	-.09	.04
Negative affect-b	.84	.07	.03	.07	.03	.07	.11	-.04	.07
Negative affect-c	.84	-.01	.11	.07	.07	.02	.08	-.04	.09
Negative affect-d	.86	.01	.05	.08	.03	.05	.19	-.04	.05
Negative affect-e	.69	-.05	.27	.14	.09	.13	-.06	.03	.11
Negative affect-f	.84	-.04	.06	.10	.03	.03	.11	-.02	.17
Negative affect-g	.77	-.07	.02	.06	-.05	.01	.17	.07	.07
Negative affect-h	.63	.04	.14	.07	.09	.06	.07	-.05	.12
Intention-a	.16	.08	.24	.85	.19	.14	.12	-.01	.16
Intention-b	.15	.02	.24	.87	.19	.11	.09	-.01	.09
Intention-c	.15	.04	.21	.86	.18	.13	.12	-.01	.05
Intention-d	.13	.23	.14	.83	.10	.12	.16	-.05	.13

Note. PBC = perceived behavioral control. The factor loadings for the items that constituted the g factors are in bold. The remaining factor loadings are italicized.

factor 5 (.68 to .81). Items that were included in the *subjective norms* scale loaded on factor 6 (.77 to .86) and the items measuring *moral norms* loaded on factor 7 (.70 to .88). Finally, the items measuring *self-identity* loaded on factor 8 (.72 to .88) and the items measuring *group identity* loaded on factor 9 (.77 to .83).

Among the 36 items, we found that the attitude item *bad-good* loaded on factor 3 (positive affect) with a factor loading of .41, and that the group identity items loaded on factor 8 (self-identity) with factor loadings ranging from .38 to .41. Except for these findings, only small factor loadings were observed on other factors, the largest being .29. There is thus strong support for the contention that the predictors in the present study possess discriminant and convergent validity.

Results

Correlations among the measured variables, reliability coefficients, and descriptive statistics are presented in Table 2. Table 2 shows that all variables were significantly correlated with intentions, except from self-identity. Moreover, the results revealed that all variables except PBC and negative anticipated affect were significantly correlated with behavior.

Table 3

Predicting Intentions to Quit Smoking

	Adjusted R^2	F_{change}	β
Step 1			
Attitude			.51***
Subjective norms			.14***
Perceived behavioral control	.36	131.12***	.20***
Step 2			
Attitude			.33***
Subjective norms			.05 <i>ns</i>
Perceived behavioral control			.18***
Moral norms			.08**
Self-identity			.05 <i>ns</i>
Group identity			.22***
Negative anticipated affect			.04 <i>ns</i>
Positive anticipated affect			.12***
Past behavior			.09**
Past Behavior \times Self-Identity			-.02 <i>ns</i>
Moral Norm \times Negative Affect	.45	12.65***	.04 <i>ns</i>

Note. $N = 698$.

** $p < .01$. *** $p < .001$.

Regressions to Predict Intentions

We performed a regression analysis to test whether this extended TPB model could predict intentions.³ The TPB variables were entered first, followed by the additional variables, and, finally, the interaction terms. We used mean-centered

³As a routine check, we applied Royston's (1982) extension of the Shapiro and Wilk's W statistic to test the distribution of the residuals. The analyses revealed that the residuals were normally distributed (Shapiro-Wilk score: 0.999, *ns*). We also tested whether the residuals were heteroscedastic by making a scatterplot of the standardized predicted value of behavior and the standardized residuals. The plots revealed that residuals were homoscedastic. Thus, the results supported use of parametric statistics (Hankins, French, & Home, 2000).

scores to minimize the problems of multicollinearity (Aiken & West, 1991). The results are presented in Table 3.

Step 1 (Table 3) revealed that attitude ($\beta = .51, p < .001$) was the strongest predictor of intentions, followed by PBC ($\beta = .20, p < .001$) and subjective norm ($\beta = .14, p < .001$). The TPB components accounted for 36% (adjusted R^2) of the variance in behavioral intentions. The impact of attitude and PBC remained significant after the inclusion of the extension variables, while the effect of subjective norm became nonsignificant. In addition, moral norms ($\beta = .08, p < .01$), positive anticipated affect ($\beta = .12, p < .001$), group identity ($\beta = .22, p < .001$), and past behavior ($\beta = .09, p < .01$) contributed significantly to the prediction of intentions. This extended TPB model accounted for 45% (adjusted R^2) of the variance in intention.

Regressions to Predict Behavior

The TPB components, the additional variables, and, finally, the interaction terms (Time 1) were then entered into a regression analysis to predict behavior (Time 2).⁴ Again, mean-centered scores were used to minimize the problems of multicollinearity (Aiken & West, 1991). The results are presented in Table 4.

Step 1 (Table 4) showed that behavior was significantly predicted by intention ($\beta = .34, p < .001$), but not PBC ($\beta = -.01, ns$). The TPB components contributed to 12% (adjusted R^2) of the explained variance in behavior. In Step 2, intention ($\beta = .27, p < .001$) remained the strongest predictor of behavior. In addition, past behavior ($\beta = .16, p < .001$), moral norms ($\beta = .10, p < .01$), self-identity ($\beta = -.08, p < .05$), and the Intention \times Past Behavior ($\beta = -.17, p < .001$), and Moral Norms \times Negative Affect ($\beta = -.09, p < .01$) interactions were significantly related to subsequent behavior. A total of 21% (adjusted R^2) of the variance in behavior was accounted for by this extended TPB model.

We probed the nature of the significant interactions using simple slope analysis (Aiken & West, 1991) by examining the regression lines at three levels of the hypothesized moderators (i.e., the mean level and at one standard deviation above and below the mean). The results showed that when past behavior increased from low, through moderate, to high, intentions became a weaker predictor of behavior ($B = 0.07, p < .001$; $B = 0.05, p < .001$; $B = 0.02, p = 0.06$, respectively). Moreover, when negative anticipated affect increased from low, through moderate, to high, the predictive power of moral norms decreased ($B = 0.04, p < .01$; $B = 0.02, p < .05$; $B = 0.00, ns$, respectively).

⁴Analyses revealed that the residuals were normally distributed (Shapiro-Wilk score: 0.998, *ns*) and that the residuals were homoscedastic.

Table 4

Predicting Behavior

	Adjusted R^2	F_{change}	β
Step 1			
Intention			.34***
PBC	.12	45.16***	-.01 <i>ns</i>
Step 2			
Intention			.27***
PBC			.04 <i>ns</i>
Moral norms			.10**
Self-identity			-.08*
Group identity			.07 <i>ns</i>
Negative anticipated affect			-.06 <i>ns</i>
Positive anticipated affect			.05 <i>ns</i>
Past behavior			.16***
Intention \times PBC			.06 <i>ns</i>
Intention \times Past Behavior			-.17***
Intention \times Negative Affect			.03 <i>ns</i>
Intention \times Positive Affect			.01 <i>ns</i>
Past Behavior \times Self-Identity			-.03 <i>ns</i>
Moral Norms \times Negative Affect	.21	2.84***	-.09**

Note. $N = 698$. PBC = perceived behavioral control.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Intention–Behavior Inconsistency

To get a more thorough understanding of the discrepancy between intention and behavior we decomposed intention into positive versus negative intention, and behavior into performance versus nonperformance (McBroom & Reed, 1992). The analysis revealed the patterns of relationships shown in Table 5. Among the 625 respondents, 100 (33%) were inclined actors, 208 (67%) were inclined abstainers, 52 (16%) were disinclined actors, and 265 (84%) were

Table 5

Decomposition of Intention–Behavior Consistency Among Daily Smokers

	Quit smoking (T ₂)	Did not quit smoking (T ₂)
Strong intention to quit smoking (T ₁) Intention score = 4.25–7.00	Inclined actors (N = 100, 33%)	Inclined abstainers (N = 208, 67%)
Weak intention to quit smoking (T ₁) Intention score = 1.00–3.75	Disinclined actors (N = 52, 16%)	Disinclined abstainers (N = 265, 84%)

Note. N = 625. Those who had a mean score of 4 on the intention scale (N = 73) was deleted (Sheeran, 2002).

disinclined abstainers. Finally, a discriminant analysis was used to identify which of the specified variables that best could discriminate between the four groups. The results are presented in Table 6.

One significant discriminant function was derived from the specified variables. The variables were only able to discriminate between the participants who where motivated (inclined) to quit smoking and the participants who were not motivated (disinclined) to quit smoking. Three variables dominated the discriminant function which explained 95.5% of the variance: attitude ($r = .78$), positive anticipated affect ($r = .65$) and group identity ($r = .62$). Group centroids derived from the extended TPB model were .85 and .73 for inclined actors and inclined abstainers, respectively, and -.45 and -.90 for disinclined actors and disinclined abstainers, respectively.

T tests revealed, however, that inclined actors scored significantly higher than inclined abstainers on intention, $t(306) = 2.38, p < .01$. Moreover, disinclined actors scored significantly higher than disinclined abstainers on moral norms, $t(315) = 1.93, p < .05$, and PBC, $t(315) = 2.36, p < .01$.

Discussion

To our knowledge this is the first study employing this extended version of the TPB to predict the intentions to quit smoking and the subsequent behavior 6 months later, and may in this capacity provide novel information for the design of future smoking interventions (cf. Hardeman et al., 2002). The study was also motivated by the recommendation of Ajzen (1991) to identify predictors of behavioral intentions and behavior that contribute to significant proportion of the variance beyond the effect of the TPB constructs. In this context we confirmed empirically a number of issues which have received scant attention in studies that

Table 6

Mean Scores of the Measured Variables for Inclined Actors, Inclined Abstainers, Disinclined Actors, and Disinclined Abstainers

	Inclined actors (<i>N</i> = 100)	Inclined abstainers (<i>N</i> = 208)	Disinclined actors (<i>N</i> = 52)	Disinclined abstainers (<i>N</i> = 265)
Attitude	2.25	2.11	1.06	0.87
Subjective norm	5.94	5.72	4.54	4.66
PBC	4.59	4.45	4.67	4.05**
Moral norm	3.51	3.39	2.60	2.20*
Self-identity	5.07	5.07	5.07	5.16
Group identity	4.42	4.26	3.08	2.53
Negative affect	3.58	3.59	2.72	2.70
Positive affect	6.15	6.03	4.47	4.59
Past behavior	8.15	4.62	4.11	1.40
Intention	5.93	5.67**	2.15	1.93

Note. *N* = 625. PBC = perceived behavioral control. Differences between scores of inclined actors and inclined abstainers, and between disinclined actors and disinclined abstainers were tested with *t* tests (two-tailed).

p* < .05. *p* < .01.

have applied the TPB to study health behaviors in general, and particularly smoking cessation: a distinction between positive and negative anticipated affect using factor analysis and their independent prediction of intentions; significant direct effects of group identity and moral norms on intentions; direct effects of self-identity and moral norms on subsequent behavior; direct effects of past behavior in predicting intentions and behavior; interactions between negative anticipated affect and moral norm, and intention and past behavior in relation to behavior. Moreover, we found that inclined abstainers constituted the main source of the discrepancy between intentions to quit smoking and subsequent behavior. A discriminant analysis revealed that the specified predictors could discriminate between disincliners and incliners, but not between inclined actors/inclined abstainers and disinclined actors/disinclined abstainers. Furthermore, a methodological strength of the present study is that we tested whether the residuals from the regression analyses were heteroscedastic, and whether they were normally

distributed. This is seldom done within the framework of the TPB (Hankins et al., 2000). Finally, we performed a principal component analysis of the items employed to measure the independent variables, the results of which provide strong support for the discriminant and convergent validity of the constructs.

Predicting Intentions

The results of this study support the use of the TPB in relation to university students' intentions to quit smoking over a 6-month period in that the theoretical components explained 36% (adjusted R^2) of the variance. Attitude was the strongest predictor followed by PBC and subjective norm. These findings are in accordance with previous results from studies in which the TPB was applied to study health-related behaviors in general (Armitage & Conner, 2001). The results also correspond with the results from studies predicting quitting intentions (cf. Falomir & Invernizzi, 1999; Hu & Lanese, 1998; Norman et al., 1999; Willemsen et al., 1996), where the TPB accounted for an average of 30% of the variance in intentions. However, the relative impact of the TPB components on quitting intentions varied across these studies—that is, attitude was the strongest predictor in one study (i.e., Willemsen et al., 1996), PBC was the strongest predictor in two studies (Hu & Lanese, 1998; Norman et al., 1999), and subjective norm was the strongest predictor in one study (Falomir & Invernizzi, 1999). Ajzen (1991) suggested that the impact of the TPB variables may differ in different target populations and situations. The studies above were conducted among Spanish secondary school students ($M = 16.7$ years of age), smokers ($M = 43.4$ years) attending health promotion clinics in a primary care setting in Great Britain, employees ($M = 40.6$ years) at large worksites in the Netherlands, and men ($M = 40$ years) from three workplaces in southern Taiwan. Thus, to answer whether these variations are caused by differences in different populations, future research should study random samples from the general population.

The study provided empirical support to the idea that the TPB might benefit from being extended with moral norms, positive anticipated affect, group identity, and past behavior in predicting intentions. Thus when the individual is convinced that it is morally wrong to smoke, s/he will be more motivated to quit smoking. No study has previously demonstrated that moral norms influence intentions to quit smoking. However, Moan and Rise (2005b) found that moral norms predicted adolescents' intentions to reduce smoking, beyond the impact of the TPB. Moreover, the present study supported the notion that when an individual anticipates having a high degree of positive feelings after quitting smoking, then his/her intention to quit smoking will be stronger. Previous research applying the TPB has mainly confirmed the predictive power of negative anticipated affect or anticipated regret (see Conner et al., in press, for review). However, this study and the study of Moan et al. (2005) demonstrated, in terms of a factor

analysis and by means of predictive utility using regression analysis, that positive and negative anticipated affect could be regarded as two distinct concepts. Both studies showed that intentions only were predicted by positive anticipated reactions. These findings indicate that it may be worthwhile to extend TPB research on the dual conceptualization of anticipated affective reactions to other behaviors. The significant effect of group identity in predicting intentions indicates that when an individual dislikes being associated with the group of smokers or rather would like to belong to the group of nonsmokers s/he is more likely to be motivated to quit smoking. The effect of group identity supports the results of Falomir and Invernizzi (1999) who also found an effect of self-identity on the intention to quit smoking. However, their measure of self-identity may be construed as including items that reflected both self-identity and group identity. In the present study, we used a theoretically derived measure of group identity (Ellemers et al., 1999) based on the original writings of Tajfel and Turner (1979; see Rise & Moan, 2004, for an extended discussion). Finally, consistent with previous research (e.g., Hu & Lanese, 1998; Willemsen et al., 1996), the results showed that when an individual has tried to quit smoking previously, s/he is more likely to be motivated to try again.

We were able to identify four studies that simultaneously applied moral norms, self-identity, and anticipated affective reactions (two of the studies included past behavior as an additional predictor) within the framework of the TPB: Conner and Flesch (2001); Evans and Norman (2003); Jackson et al. (2003); Moan et al. (2005). The present study extended these studies by successfully including positive anticipated affect and group identity as additional variables. However, whether these variables should be included in the TPB on a more permanent basis or not, when studying quitting intentions, can only be answered through further research.

Predicting Behavior

This study showed that behavioral intentions were able to account for 12% of the variance in subsequent behavior. The fact that subsequent behavior only was predicted by intentions is consistent with the findings of Norman et al. (1999). Hence, the results indicate that it is difficult for smokers to foresee their actual control over quitting smoking. However, Johnston et al. (2004) found that PBC was the strongest predictor of behavior, while intentions failed to predict behavior. While the study of Johnston et al. (2004) was conducted among patients 1 year after diagnosis with coronary heart disease, our study and the study of Norman et al. (1999) was conducted among presumably healthy individuals. Thus, the inconsistent findings might be related to characteristics of the samples (cf. Ajzen, 1991). However, further research on random samples from the general population need to be conducted to draw certain conclusions regarding this issue.

Intentions remained the strongest predictor of behavior after entering the extension variables in the regression analysis. However, moral norms, self-identity as a smoker, and past behavior predicted behavior, beyond the effect accounted for by the TPB components. The impact of moral norms and self-identity has mainly been confirmed in relation to intention in previous studies (but see Beck & Ajzen, 1991; Jackson et al., 2003; Manstead, 2000; Moan & Rise, 2005b; Sparks, 2000). Beck and Ajzen (1991) found that moral norms had a direct effect in predicting lying and cheating. The present study indicates that moral norms also can predict socially appreciated and accepted behaviors; quitting smoking. Moreover, the results from this study shows that self-identity in terms of being a smoker can have a direct effect on behavioral performance. Thus, participants who intended to behave as implied by their self-identity (e.g., as smokers) were less likely to quit smoking compared to people who had a strong self-identity as a nonsmoker (see Moan & Rise, 2005b, for similar results).

In accordance with the findings of Norman et al. (1999), the results in this study supported the inclusion of past behavior as an additional predictor of behavior. Hence, if smokers previously have tried to quit smoking it is more likely that they will try to quit again. This might be related to experiences during the last attempt; for example, it is possible that smokers may have acquired skills and strategies on how to increase the likelihood of another quit attempt being successful and/or they may have experienced that their personal finances were better, their physical condition improved, etc. The impact of past behavior on subsequent behavior was nevertheless weak in the present study compared to the findings of Norman et al. (1999).

In addition to the direct effects mentioned, we found two significant interaction effects in predicting behavior. First, the interaction between intention and past behavior was significant. Simple slope analysis supported the assumption of Triandis (1980)—that is, that if the same behavior has been performed previously, it will be less guided by intentions. Second, the interaction between moral norms and negative anticipated affect in predicting behavior was significant. Simple slope analysis revealed that when negative anticipated affect increased from low to high, the impact of moral norms decreased. This is in accordance with the findings reported by Moan et al. (2005). One possible interpretation of these findings is that *one* of these mechanisms is sufficient (along with the other significant predictors) to ensure that students succeed in their attempt to quit smoking. However, to draw more certain conclusions about the above interpretation, further research is needed.

As noted by several authors, the TPB is an account of the processes underlying behavioral initiation, and not an account of the processes underlying behavioral maintenance (Fishbein & Ajzen, 2005; Rothman et al., 2004; Sheeran, Conner, & Norman, 2001). Thus it is likely that one should be able to account for a higher percentage of variance in behavioral intentions than for behavioral performance.

The study of Sheeran et al. (2001) may be informative in this context. They distinguished between adopting (in this case, quit) versus not adopting (e.g., continue, reduce smoking) a behavior, frequency of performances (number of quit attempts, frequency of smoking), and patterns of behavior (pertaining to maintenance and relapse). They found support for the hypothesis that the TPB predicted attendance versus nonattendance of health screening (using canonical correlation analysis), and that the TPB provided a satisfactory prediction of frequency of attendance over 13 months (Sheeran et al., 2001). Thus the TPB variables (including gender) accounted for 11% of the variance, and both intentions ($\beta = .24, p < .001$) and PBC ($\beta = .14, p < .05$) predicted frequency of attendance. However in their study, the TPB variables had problems in discriminating the key patterns of attendance behavior. In this light, the finding in the present study that the TPB variables explained 12% of the variance in quitting behavior, and the extended model accounted for 21% of the variance, appears promising. This is more so since we tried to conceptualize our dependent variable, quitting smoking, in terms of patterns of change. Quitting smoking implies breaking a difficult habit and to getting rid of an addictive behavior. This takes considerable time in terms of trying to quit, then relapsing, and then new attempts, possibly interspaced with reducing the number of cigarettes smoked. Thus some smokers change their minds all the time, contributing to unstable intentions, and it may take a long time to become a nonsmoker, and hence to establish a high quit rate. In order to create variations in the dependent variable, quitting smoking, we added three dichotomous variables: *stopping*, *reducing*, and *trying to stop smoking*.

Intention–Behavior Inconsistency

The discriminant analysis revealed that inclined abstainers (i.e., those who intended to quit smoking but did not do so) constituted the main source of the discrepancy between intention and behavior, but that disinclined actors (i.e., those who did not intend to quit smoking, but changed their mind) also was responsible for the intention–behavior gap. This is in accordance with the findings of Sheeran (2002). He found that the median percentage of intenders who failed to act upon their intentions was 47% whereas the median percentage of nonintenders who subsequently performed the behavior was 7%. In the present study these percentages were 67% and 16%, respectively. Thus, both the inclined abstainers and the disinclined actors played a relatively large role in the present study compared to the studies reviewed by Sheeran. This difference might be related to the time span between the measuring points in the various studies (Sheeran & Orbell, 1998), type of behavior or characteristics of the sample (cf. Ajzen, 1991; Randall & Wolff, 1994), and the fact that intentions might change (cf. Conner et al., in press). However, Sheeran only included six studies in his review, and none of these studies concerned smoking cessation. Moreover, the

present study showed that the specified variables only were able to discriminate between disincliners and incliners, and not between inclined actors/inclined abstainers, and disinclined actors/disinclined abstainers. This is in accord with the findings of Sheeran. However, further research is needed to draw more certain conclusions about the sources of inconsistency between intention and behavior in relation to smoking cessation.

Finally, the specified variables that best discriminated between smokers who were inclined or motivated to quit and those who were not motivated (disinclined) were attitude, positive anticipated affect, and group identity. Thus, the idea that inclined abstainers perceived a lower degree of behavioral control than inclined actors, which could explain why they do not act upon their intentions (cf. Ajzen, 2002a), was not supported. However, we found that disinclined actors scored significantly higher than disinclined abstainers on moral norms and PBC. Hence, compared to disinclined abstainers the disinclined actors seemed more convinced that quitting smoking is an act reflecting good morality, and they perceived their control over quitting smoking as being higher.

Implications for Interventions

The results of the present study have a number of practical implications for interventions to encourage smokers to quit smoking in terms of the predictive power of the extended TPB model (cf. Hardeman et al., 2002). Since intentions were the strongest predictors of subsequent behavioral performance, the most effective way to alter the behavior for this group of smokers would be to strengthen their intention to quit smoking. The data relating to PBC indicates that it would be useful to focus on aspects that can enhance the individuals' skills and knowledge (internal control) in order to influence smokers' intentions to quit. It may also be useful to inform students about opportunities that would make a quit attempt easier (e.g., nicotine substitutes) and how potential obstacles should be handled (external control). Which specific control beliefs that should be in focus in a future intervention needs, however, to be determined by additional research. Moreover, the data indicates that bringing social pressure to the individual by focusing on the opinions of significant others would be less successful. The strongest predictor of intention, and the variable that discriminated best between incliners and disincliners, was attitudes toward quitting smoking. Thus, the study indicates that the most dominating aspect in a future campaign designed to strengthen students' intentions to quit smoking should be the consequences of quitting smoking. Hence, identification of the consequences of quitting smoking that are the most salient and important for students in this age group (e.g., health aspects, economy) is an important task for future research.

The results also indicate that it may be useful to focus on group identity, positive anticipated affect, and moral norms in an intervention aimed at

strengthening the intention to quit smoking. Group identity had the greatest impact on intentions, after attitude, and may thus be a distinctive target for social influence. For example, it might be worthwhile to address weak identifiers in order to further weaken their emotional ties to the group of smokers by emphasizing attractive characteristics of the nonsmokers (Falomir & Invernizzi, 1999). On the other hand, the strong effect of group identity also indicates that quitting smoking not only concerns a change of behavior, but also a change of identity. There is good evidence that anticipated affect can be influenced, primarily by increasing the salience of such postbehavioral emotions. Richard et al. (1996a) and Sheeran and Orbell (1999) found consequent effects on intention and behavior simply by asking people to think about such feelings. Thus, one effective way of influencing anticipated emotions seem to be inviting the receivers to consider how they would feel if they followed (or did not follow) a particular course of action, for example, quitting smoking or not. Another strategy suggested by O'Keefe (2002) may be that receivers will experience a given emotion if they did not quit smoking—for example, they would feel guilty. Concerning moral norms, little explicit research guidance exists on how to change a moral conviction, although strengthening already existing moral norms or creating new moral convictions could be two possible strategies (O'Keefe, 2002).

Except from strengthening the intention to quit smoking, this study suggests that making an attempt to quit smoking also depends on a conviction that it is morally wrong to smoke and further that individuals who identify themselves as being nonsmokers are more likely to quit smoking than those with a strong identity as a smoker. Thus, new knowledge on how to alter moral norms and self-identity would be valuable for future smoking cessation programs. Finally, the direct relationship between past and future behavior show that previous quit attempts increase the probability that a smoker will try quitting again. Thus, it is important to motivate smokers to try to quit. However, this result also implies that one of the most challenging aspects of the quitting process is to remain smoke free.

Potential Limitations of the Present Study

In interpreting the above findings there are a number of potential methodological problems with this study which should be noted. First, we applied a structured questionnaire under the assumption that individuals possess a relatively stable set of mental representations (cf. Ajzen & Fishbein, 1980), for example, a positive or negative evaluation of a specific behavior. Some studies have indicated that responses vary as a function of the format of the questionnaire (e.g., Budd, 1987; Sheeran & Orbell, 1996), while others (Armitage and Conner, 1999) have not confirmed this finding. On the other hand, of more relevance for the present study, Armitage and Conner found that response format

did not moderate the relations between the theoretical components, but affected the pattern of predictions. However, it is not possible to say whether this may have been a problem in the present study. A second potential threat to the reliability and validity of the TPB measures is social desirability. Sheeran and Orbell found some effect of social desirability on the reliability of the measures, and the correlations between the components in the protection motivation theory, whereas Beck and Ajzen (1991) and Armitage and Conner (1999) could not confirm this finding in their studies of dishonest behavior and food choice. Armitage and Conner therefore suggested that Sheeran and Orbell's findings were artifactual. Third, the study relied on self-report measures only. This is almost unavoidable for constructs such as attitude, but it would be valuable to collect objective measures of smoking behavior and to examine the power of this extended TPB model to predict such a behavioral measure. Armitage and Conner (2001) found in their meta-analysis of the TPB that the model significantly predicted objectively observed behavior, although the level of prediction was lower than for self-report measures (see also Conner et al., in press). Hence, we might expect weaker but similar relationships if we had employed more objective measures of smoking.

Conclusions

The present study supports the use of the TPB in predicting intentions to quit smoking in that the model explained 36% of the variance. However, moral norms, group identity, positive anticipated affect, and past behavior added 9% in the explained variance in intention, beyond the effect of the TPB components. Behavioral intentions contributed to 12% of the explained variance in subsequent behavior. In addition, moral norms, self-identity, past behavior, and the Intention \times Past Behavior and Moral Norms \times Negative Anticipated Affect interactions explained 9% of the variance in behavior. Inclined abstainers constituted the main source of the discrepancy between intention to quit smoking and the subsequent quit attempt, but disinclined actors also played a relatively large role in this matter. Discriminant analysis showed that the extended TPB model only was able to discriminate between those who were motivated to quit smoking and those who were not. Attitude, positive anticipated affect and group identity dominated the significant discriminant function.

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Paper III

III

Predicting smoking reduction among adolescents using an extended version of the theory of planned behaviour

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This study tested the ability of the theory of planned behaviour (TPB) to predict adolescents' intentions to reduce smoking and the subsequent behaviour one year later. In addition, past behaviour, moral norms, self-identity as a smoker, group identification, group norm, and action planning were assessed. A prospective sample of 145 adolescents ($M = 14$ years, Time 1) participated in the study. The TPB provided good predictions of intentions (adjusted $R^2 = 0.28$). An extended TPB model including past behaviour, self-identity, moral norms, and the group identification \times group norm interaction accounted for 38% (adjusted R^2) of the variance in intentions. The TPB components did not have a direct impact on subsequent behaviour, while past behaviour, self-identity, action planning and the perceived behavioural control \times intention interaction accounted for 24% (adjusted R^2) of the variance in behaviour after one year.

Keywords: TPB, group identification, group norm, moral norms, self-identity, past behaviour, action planning.

Introduction

Studies in the developed countries show that most adult smokers start smoking regularly before the age of 18 years (The Royal College of Physicians, 1992). In Norway, the prevalence of daily smoking has fallen sharply since the peak year of 1975 (Lund, 1998). However, there has been no decrease in the prevalence of daily smoking among adolescents the last 10 to 15 years (Braverman, Svendsen, Lund & Aarø, 2001; Kraft & Svendsen, 1997). In 1975 46% of 13-15 year olds reported smoking daily or occasionally (Braverman et al., 2001). From 1990 to 1995 the prevalence increased from 24% to 26%. Data from 2000¹ showed that the prevalence of smoking among 15 year olds was relatively stable from 1990 to 2000, i.e., 43% of the girls and 31% of the boys reported smoking in 1990 while in 2000 these figures were 43% and 34% for girls and boys, respectively (Lund & Rise, 2002). However, for 13 year olds the picture was somewhat different. In 1990 11% of the girls and 10% of the boys smoked, whereas in 2000 15% of both genders were smokers (Lund & Rise, 2002). Similar trends in terms of a decrease in smoking prevalence among adults but not among adolescents have been reported the last 10-20 years in the United Kingdom, the United States and The Netherlands (e.g., Engels, Knibbe & Drop, 1999; Goddard & Higgins, 1999).

In addition to these alarming tendencies, there are a number of other empirical indications pointing to increased efforts at smoking interventions among young adolescents. First, it has been shown that starting to smoke at a young age strongly predict lasting consumption of cigarettes (Chassin, Presson, Sherman & Edwards, 1990). For example, Pierce and Gilpin (1996) estimated that half of those who start smoking during adolescence continue to smoke for 16-20 years. Second, a recent study among 12-13 years old smokers showed that symptoms of dependence develop rapidly after the onset of smoking on an intermittent basis with great individual differences (DiFranza et al., 2003), and furthermore that the symptom developers escalated into heavier daily smoking than other smokers (Wellman, DiFranza, Savageau & Dussault, 2004).

Two main intervention strategies may be adopted when it comes to reducing smoking among adolescents: to prevent them from starting to experiment with smoking or try to persuade those who are smoking to stop smoking, which includes smoking reduction. In the present study we are

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¹ The results from 2000 are based on data (N = 24 127) from the "School Surveys", which Braverman et al. (2001) also based their analysis on. The same questions have been administered in November every fifth year since 1975.

adopting a theoretically derived approach to study smoking reduction among young adolescents, the Theory of Planned Behaviour (TPB) (Ajzen, 1991) which would appear to be the most popular and successful model for studying health behaviour (cf., Godin & Kok, 1996; see also Ajzen, 1991; Armitage & Conner, 2001). The TPB has also been successful in predicting smoking among adolescents (see for reviews Conner, Sandberg, McMillan, Higgins, in press; Higgins & Conner, 2003; McMillan, Higgins & Conner, in press; Moan & Rise, 2005). These studies have provided good predictions of intentions and subsequent behaviours. However, few studies have employed the TPB to study quitting smoking or reduction of smoking among adolescents (but see Falomir & Invernizzi, 1999). Sussman (2002) identified 17 prospective studies conducted in the period 1975-2001 which addressed self-initiated² smoking cessation among adolescents (aged 12-16 years). Few of these studies explored the reasons underlying quitting intentions, and the translation of intentions into actual quitting, i.e., the phase of self-regulation in this group, using a coherent theoretical approach.

We believe that there are a number of empirical indications in favour of studying reduction of smoking as opposed to studying smoking cessation among adolescents. First, longitudinal studies have shown that few adolescents quit on their own (Engels, Knibbe, de Vries & Drop, 1998). Engels et al. (1998) found in a large longitudinal sample of adolescents who were surveyed three years apart (average ages 14.4 and 17.4) that only 12% had quit over the 3-year period, 19% were seriously considering quitting while 32% reported that they had not thought about quitting. In terms of the TPB, these data indicate that there is great gap between intentions to quit smoking and actual quitting among adolescents. A number of reasons for this gap may be suggested. As noted above, recent evidence (DiFranza et al., 2003) indicate that young people may become nicotine dependent even before they are becoming daily smokers, i.e., nicotine dependence may develop more rapidly than previously suggested. Moreover, one study adopting a qualitative focus group approach indicated that adolescents' were not able to formulate concrete plans and they did not know how to quit (cf., Balch, 1998). This finding suggests that measures of intentions to quit smoking may be quite unstable in this group of smokers, and that they lack self-regulatory strength, or that they do not know what self-regulatory strategies to use or how to use them (cf., Orbell, 2004). The notion that quitting intentions may be unstable was supported in a recent study conducted among adults (cf., Hughes, Keely, Fagerstrom & Callas, 2005). Hughes et al. (2005) found that among 12-17% of the participants intentions to quit smoking changed over 7 days, 15-25% changed over 14 days and 17-34% changed over 30 days.

Another set of arguments in favour of studying reductions in smoking, derive from studies which have found that adolescents want to smoke for some years and then quit (see Baker, Brandon & Chassin, 2004), suggesting that quitting smoking may be an unrealistic goal at this age. Thus, young smokers may be better able to articulate concrete plans about whether or not to reduce their smoking than about actual quitting, and it may be an easier goal to implement than actual quitting. Furthermore, some studies have shown that smoking reduction predicts future smoking cessation (e.g., Hughes, 2000; Falba, Jofre-Bonet, Busch, Duchovny & Sindelar, 2003).

The theory of planned behaviour

According to the TPB the proximal determinants of behaviour are the *intentions* to engage in the behaviour. Intentions reflects an individual's decision to exert effort to perform the behaviour and is assumed to be a function of an (i) individual's *attitude* towards the specific behaviour, i.e., a positive or negative evaluation of the behaviour, (ii) *subjective norms* which refer to an individual's perception that important others in his or her social environment wish or expect him or her to behave in a certain way, and (iii) the *perceived behavioural control* (PBC) over the behaviour. PBC is defined as the person's own perception of how easy or difficult it is to execute the behaviour, and Ajzen (1991) stated that PBC would only influence behaviour directly if it gave an accurate picture of the actual control.

As noted above, young smokers might become addicted to cigarettes. This does not imply that they have lost control over this behaviour, only that it is a difficult behaviour to change in the

² Self-initiated smoking cessation refers to smokers who quit on their own, without involvement in a formal quit effort.

sense that their perception of control over the behaviour appears incomplete. In this case, a measure of intention will be a poor predictor of behavioural performance or goal attainment. This implies that one should be able to improve behavioural prediction if actual control is included along with intentions. Ajzen (1991) suggested that since it is difficult to assess actual control, one may use perceptions of control as a proxy, and meta-analyses have found that perceived control explained an additional 2% of the variance in behaviour (Armitage & Conner, 2001). However, it is when people have incomplete volitional control, like when it comes to reducing or quitting smoking, that the inclusion of perceptions of control may make a valuable contribution to prediction of behaviour (Madden, Ellen & Ajzen, 1992). In such instances, a high perception of control is expected to result in a stronger intention-behaviour relationship (cf., Ajzen, 1991). A recent meta-analysis found support for this assumption in 9 of 19 (47%) studies (Armitage & Conner, 2001). However, a study concerning quitting smoking among students, did not find an interaction between PBC and intentions (Moan & Rise, in press).

Armitage and Conner (2001) found that the TPB components accounted for an average of 39% and 27% of the variance in intentions and behaviour, respectively, across 185 studies. Thus, the TPB has in general and in relation to smoking (see McMillan & Conner, 2003, for review) provided better prediction of behavioural intentions than behaviours. The aim of this study was threefold: (i) to test the power of the TPB to predict adolescents' intentions to reduce smoking and subsequent behaviour, (ii) to improve the prediction of intentions and behaviour by including determinants presumably capturing social influence, i.e., moral norms, self-identity and group norms, and (iii) to further try to bridge the intention-behaviour gap by including past behaviour and action planning in the model.

Extending the TPB

A consistent finding in summaries of the TPB is that subjective norms turn out to be the weakest predictor of behavioural intentions (Ajzen, 1991; Armitage & Conner, 2001). Several authors have suggested that the manner in which the normative component is conceptualized within the TPB does not account for all the various ways that social influence can be exerted (e.g., Conner & Armitage, 1998; Terry and Hogg, 1996). According to Cialdini, Reno and Kallgren (1990) normative influences may stem from a variety of sources, and they suggest that it may be useful to distinguish between *injunctive norms* (akin to subjective norms) as they concern the social approval or disapproval of others, *descriptive norms*, which is concerned with what others are doing, and *moral norms*, which concern what is right or wrong to do. Since normative influence is considered to be important in relation to smoking among adolescents, the relative influence of different sources of normative pressure is of particular interest. We were able to identify two studies (McMillan et al., in press; Moan & Rise, 2005) that have examined the relative impact of these three different sources of normative influence in the context of the TPB and in relation to tobacco use among adolescents.

Descriptive norms, i.e., the perception of what significant others themselves *do* (e.g., smoking), has been included as an additional predictor in the TPB with considerable success across a wide range of behavioural domains (see Rivis & Sheeran, 2004, for meta-analysis), including adolescents smoking intentions and behaviours (Grube, Morgan & McGree, 1986; McMillan et al., in press; Moan & Rise, 2005).

Terry and Hogg (1996) challenged the idea that descriptive norms should have a direct effect on behavioural intentions. They argued from a social identity perspective proposing that norms are tied to specific groups, and that a norm has an effect because that specific group is behaviourally relevant. Accordingly, they suggested that one should focus on the norms of the reference group which is salient in a particular behavioural context, i.e., behavioural intentions would only be influenced by perceived group norms for those subjects who identify strongly with the particular group. Empirical evidence for this idea has been found in relation to a number of health-related behaviours (e.g., Johnston & White, 2003; Terry & Hogg, 1996; Åström & Rise, 2001). Moreover, Schofield and co-workers found support for this assumption in relation to young smokers' (aged 17-20 years) intentions to smoke and their subsequent smoking behaviour (cf., Schofield, Pattison, Hill & Borland, 2003), and in relation to the smoking behaviour among Year 12 students (cf.,

Schofield, Pattison, Hill & Borland, 2001). Nevertheless, it may be worthwhile to test whether this also applies to other smoking behaviours as well as other age groups, like adolescents' intentions to reduce their smoking.

Recent studies applying the TPB to study smoking have found support for the assumption that moral norm, i.e., "...the conviction that some forms of behaviour are inherently right or wrong, regardless of their personal or social consequences..." (Manstead, 2000, p. 12) predict intention and behaviour beyond the effect accounted for by the TPB components (e.g., McMillan et al., in press; Moan & Rise, in press; Moan & Rise, 2005; Moan, Rise & Andersen, 2005; but see McMillan & Conner, 2003).

Self-identity, i.e., how one describes oneself using large scale social categories (e.g., "I am a smoker"), thus constitutes one source of social influence distinct from normative influence. This construct has been shown to add to the prediction of intentions beyond the components of the TPB in a wide range of behavioural areas (Sparks, 2000; see Rise, Sheeran & Skalle, 2003, for meta-analysis), as well as smoking intentions (Falomir & Invernizzi, 1999; Moan & Rise, 2005; Moan et al., 2005). Some authors have also suggested that there is an interaction between self-identity and past behaviour (Charng, Piliavin & Callero, 1988). The idea is that a particular behaviour which is performed frequently in the past, e.g., smoking, become internalised as an important sense of self. Based on this idea, the self-identity-intention relation is expected to be stronger for individuals who have smoked frequently in the past than for those who have smoked occasionally (Charng et al., 1988). Moreover, Granberg and Holmberg (1990) argued and found empirical support for the idea that self-identity also may predict behaviour beyond the impact accounted for by intentions, and Moan & Rise (in press) found support for this assumption in the area of quitting smoking.

In addition to the above factors, past behaviour in terms of frequency of prior smoking may determine whether one intends to reduce smoking, i.e., if one is smoking on a daily basis, one is less likely to reduce one's smoking than if one is smoking more occasionally (Falomir & Invernizzi, 1999). Two main accounts may be advanced for this relation. It may be that daily smokers perceive a lower degree of control over reducing one's smoking or that their perception of being a smoker may be more strongly embedded into their self. In the former case, PBC should mediate the effect of prior smoking on intentions, while in the second case, self-identity should mediate the effect. Finally, prior smoking may determine subsequent smoking beyond behavioural intentions, i.e., the more frequently one smokes at T1 the more frequently one smokes at T2 irrespective of intentions to reduce the smoking (see Rise, Kovac & Kraft, 2005).

As noted by Fishbein and Ajzen (2005) the TPB is not an account of the processes implicated in the translation of intention into action, and hence need to be supplemented by self-regulatory strategies (e.g., Sheeran, 2002; Rothman, Baldwin & Hertzog, 2004). This gap between intentions and behaviour can mainly be ascribed to inclined abstainers, i.e., individuals with positive intentions who do not act (see Sheeran, Milne, Webb & Gollwitzer, 2005; Moan & Rise, in press), and the failure to act may more likely be ascribed to a lack of self-regulatory strategies (Abraham, Sheeran & Johnston, 1998). One such strategy is action planning which is similar to implementation intentions, and works by linking goal-directed responses to situational cues by specifying when and where to act in order to translate the intention into lasting behavioural changes (see Rise, Thompson & Verplanken, 2003; Sniehotta, Scholz & Schwarzer, 2005; Sheeran et al., 2005). Verplanken and Faes (1999) argued that in addition to the importance of specifying the time and place for initiating behaviours, it could be equally important to specify *what* to do or *how* to perform a behaviour, especially for behaviours that are difficult to perform. Studies across a wide range of behavioural domains have shown that people who make such plans are more likely to act on their intentions than people who do not make such plans, and moreover, they will perform the behaviour faster or reach the goal sooner (see Sheeran et al. 2005, for review). Since adolescents seem to be particularly vulnerable to social pressure in relation to smoking (see McMillan et al., in press; Moan & Rise, 2005) and since quitting or reducing smoking is regarded as a complex and challenging goal to reach (see Moan & Rise, in press; Orbell, 2004), we conceptualised action planning in terms of the *how* component, i.e., mainly how to avoid specific situations, persons and groups.

Higgins and Conner (2003) found only modest and non-significant differences when they compared children who had formed implementation intentions (how, where and when) to resist

smoking with a control group who did not form such plans. However, Rise et al. (2005) found a significant impact of action planning of how, when and where to quit smoking ($\beta = .54, p < .001$), beyond intention and PBC, in a sample of smoking students. The weak impact of implementation intentions in the study of Higgins and Conner (2003) can be related to the fact that their study was conducted among 11 and 12 year olds which might lack the necessary self-regulatory skills that are required in order to initiate acts like quitting smoking (cf., Orbell, 2004). Nevertheless, the effect of action planning and other self-regulatory strategies in relation to quitting or reducing smoking among adolescents needs to be further explored.

Several researchers have suggested that the processes which makes past behavior guide future behavior, and the processes that makes implementation intention influence future behavior have important similarities (e.g., Gollwitzer, 1993; Orbell, Hodgins & Sheeran, 1997; Verplanken & Faes, 1999). For example, Orbell et al. (1997) found that among participants who had formed implementation intentions to perform breast self-examination (BSE), past behaviour had no impact on their subsequent BSE performance. For those who did not form implementation intentions, however, past behaviour was a strong predictor of BSE. Another situation is expected to occur if implementation intentions are in conflict with past behaviour. Verplanken and Faes (1999) found a main effect of both past behaviour and implementation intentions in predicting healthy eating, indicating that implementation intentions were not able to break the effect of counterintentional habits. Although the present study did not assess implementation intention in a strict sense, this reasoning applies to the present study where the smoking is in conflict with the planning (of how to reduce smoking).

Hypothesis

We expected that (i) the TPB components would predict adolescents' intentions to reduce smoking and the subsequent behaviour one year later, and that (ii) past behaviour, moral norms, self-identity, group identification, group norm, and the past behaviour \times self-identity and group identification \times group norm interactions would predict intention beyond the effect accounted for by the TPB, and finally (iii) we expected that past behaviour, moral norms, self-identity, group identification, group norm, action planning, and the PBC \times intention, past behaviour \times self-identity and group identification \times group norm, but not the past behaviour \times action planning interactions would predict behaviour, after the TPB components had been taken into account.

Method

Respondents and procedure

The present study was conducted in November 2000 and November 2001. Questionnaires were sent via standard mail to pupils who were selected by drawing one pupil (born the 6th day in every month) from 9th grade classes (with 15 or more pupils) in Norway. In total 913 adolescents (females = 460; males = 453) completed questionnaires. All children were in a single school year and were either 13 or 14 ($M = 13.97, SD = 0.27$) years old (Time 1). Questionnaires were anonymously completed in classroom time. The sample contained 174 smokers. However, due to missing data, 29 participants were excluded from the analysis. Our final sample, on which all analysis are reported, consisted of 145 smokers (Time 1) where 51 (35.2%) reported smoking daily, 16 (11.0%) reported smoking 3-5 times a week, 17 (11.7%) reported smoking 1-2 times a week, and 61 (42.1%) reported smoking less than 1-2 times a week. Among the 145 participants, 88 (60.7%) were girls ($M = 13.95, SD = 0.26$) and 57 (39.3%) were boys ($M = 13.98, SD = 0.30$).

Material

Attitude was measured with five items using a seven-point semantic differential scale (ranging from -3 to +3): "To smoke less in the following year will for me be...": (1) *Bad - Good*, (2) *Useless - Useful*, (3) *Unfavourable - Favourable*, (4) *Wrong - Right* and (5) *Unwise - Wise*. Cronbach's alpha (α) was 0.91, indicating high internal consistency. Subjective norm was

measured with two seven-point scales ranging from *Strongly disagree* (1) – *Strongly agree* (7): (1) “People that are important to me think that I should smoke less in the following year...” and (2) “People that are important to me wish that I smoked less in the following year...” (Pearson's $r = .72$). Perceived behavioural control was measured with two seven-point scales: “In the following year...”: (1) “...I can easily smoke less if I want to...” and (2) “...I will not have any problems smoking less, if I really want to...”. The scales ranged from *Strongly disagree* (1) – *Strongly agree* (7) ($r = .77$). Intention to reduce smoking was measured with five seven-point scales ranged from *Very unlikely* (1) – *Very likely* (7): “In the following year...”: (1) “...I intend to smoke less”, (2) “...I will try to smoke less”, (3) “...I plan to smoke less”, (4) “...I wish that I will smoke less” and (5) “...I will smoke less...” ($\alpha = .95$). Past behaviour was measured with the following item: “How often do you smoke?” (1) “Every day”, (2) “3-5 times a week”, (3) “1-2 times a week”, (4) “Less than 1-2 times a week”, (5) “Have quit smoking”, (6) “Have never smoked”. The response alternatives were *Yes* and *No*. Participants who answered Yes on alternative 1-4, i.e., smokers, were included in the analysis. “Less than 1-2 times a week” was coded as one (1) and “Every day” was coded as four (4). Moral norms were measured with three items: (1) “It is morally wrong of me to smoke”, (2) “I feel guilt if I smoke”, (3) “I get a bad conscience if I smoke”. The response scales ranged from *Fully disagree* (1) – *Fully agree* (7) ($\alpha = .76$). Self-identity was measured with three items: (1) “I look at myself as a person who smokes”, (2) “I’m a good example of a person who smokes”, and (3) “I would feel that I missed out on something if I didn’t smoke”. The response scales ranged from *Fully disagree* (1) – *Fully agree* (7) ($\alpha = .90$). Group identification was measured with two items: (1) “To what extent are your friends important to you?”, and (2) “To what extent do you feel that you belong with your group of friends?” The scales ranged from *Low degree* (1) – *High degree* (7) ($r = .74$). Group norm was measured with two items: “How many of your friends do you think...” (1) “...would think that reducing smoking in the following year would be good for you?”, and (2) “...will smoke less than they do today in the following year?”. The scales ranged from *Nobody* (1) – *Everybody* (5) ($r = .70$). Action planning was measured with four items: “Have you made any concrete plans on how to reduce your smoking in the following year?” For example” (1) “...how to avoid specific situations”, (2) “...how to avoid specific persons”, (3) “...how to avoid specific groups”, and (4) “...how to do something else instead”. Response options were *No* (coded as 1) and *Yes* (coded as 2) ($\alpha = .79$). Behaviour (Time 2) was measured with one scale: “How often do you smoke?” (1) “Every day”, (2) “3-5 times a week”, (3) “1-2 times a week”, (4) “Less than 1-2 times a week”, (5) “Have quit smoking”. “Every day” was coded as one (1) and “Have quit smoking” was coded as five (5).

The mean value of the items included in each scale was employed in the analysis. A principal component analysis (varimax rotation) was conducted (see Table 1) on all items employed to measure the independent variables in the study in order to assess the discriminant and convergent validity of the measures.

Principal component analysis (Table 1). The results revealed that the 28 items could be reduced to eight factors. More specifically, the items measuring intention loaded on factor 1 (factor loadings .87 to .94) and the attitude items loaded on factor 2 (.82-.92). Items measuring PBC and self-identity loaded on factor 3 (.74 and .74 for PBC and -.79 to -.88 for self-identity). The action planning items loaded on factor 4 (.64-.86), and the moral norms items loaded on factor 5 (.80-.82). Items measuring group identification loaded on factor 6 (.88 and .88), and the subjective norm items loaded on factor 7 (.79-.88). Finally, items measuring group norm loaded on factor 8 (.58-.81).

We then performed a separate principal component analysis of the PBC and self-identity items. The PBC items loaded on factor 1 (.86-.87) and the items employed to measure self-identity loaded on factor 2 (.67-.85). Besides the fact that the PBC and the self-identity measures loaded on the same factor, only small factor loadings were observed on other factors, the largest being .39. There is thus relatively strong support for the contention that the predictors in the present study possess discriminant and convergent validity.

Results

Descriptive statistics and correlations

Mean scores, standard deviations, reliability coefficients and correlations among the variables are presented in Table II.

Table I. Principal component analysis (varimax rotation) of all items included in the scales of the independent variables.

	1	2	3	4	5	6	7	8
Attitude_1	-.03	.82	.07	.19	-.03	-.02	-.02	-.08
Attitude_2	-.09	.90	-.04	.01	.06	.02	.08	.08
Attitude_3	.24	.69	-.09	-.07	.28	-.07	-.01	-.03
Attitude_4	.13	.92	.08	-.03	.02	.12	.10	.09
Attitude_5	.14	.90	.02	-.06	.02	.07	.11	-.03
Subjective norm_1	.23	.11	.02	.04	.03	-.02	.88	-.09
Subjective norm_2	.27	.11	.07	-.03	.16	-.03	.79	.14
PBC_1	.06	.10	.74	.18	-.05	-.23	.09	-.03
PBC_2	.24	-.03	.74	-.02	-.10	.06	.04	-.05
Moral norm_1	.31	.16	-.03	.14	.60	-.05	.18	.30
Moral norm_2	.39	.14	.02	.17	.82	.11	.05	.02
Moral norm_3	.24	.15	.10	.20	.80	-.07	.16	-.03
Self-identity_1	-.14	-.01	-.85	.03	-.05	-.06	.08	-.12
Self-identity_2	-.02	.04	-.79	.07	-.14	-.21	-.08	-.10
Self-identity_3	-.06	-.06	-.88	.09	-.13	-.03	-.02	-.10
Group identification_1	-.03	.09	.04	.02	.03	.88	-.14	.02
Group identification_2	-.09	.01	.06	-.06	-.03	.88	.09	.01
Group norm_1	-.02	-.22	.39	.14	.04	-.10	-.19	.60
Group norm_2	.05	-.01	.12	-.27	-.20	.12	.02	.81
Intention_1	.87	.16	.19	.07	.18	-.01	.10	.02
Intention_2	.94	.12	.12	.04	.15	-.02	.14	.00
Intention_3	.91	.12	.15	.09	.11	-.04	.15	.06
Intention_4	.83	.13	-.05	.09	.05	-.12	.15	.16
Intention_5	.80	.21	.27	.24	.19	.02	.11	.05
Action planning_1	.30	.09	-.12	.72	.06	.20	.08	-.09
Action planning_2	-.07	.05	.04	.79	.33	-.14	-.08	-.16
Action planning_3	.01	-.01	.03	.86	.11	-.10	.06	-.01
Action planning_4	.23	-.07	.01	.64	-.06	.07	.21	.13

Note. PBC = perceived behavioural control.

Table II. Correlation's among all variables, reliability coefficients (Pearson's r and Cronbach's alpha [α]), mean scores and standard deviations ($N = 145$).

	1	2	3	4	5	6	7	8	9	10	11
Attitude (1)	-										
Subjective norms (2)	.34***	-									
PBC (3)	.15	.14	-								
Intention (4)	.31***	.42***	.37***	-							
Past behaviour (5)	-.02	.04	.35***	.06	-						
Moral norms (6)	.29***	.35***	.09	.44***	.03	-					
Self-identity (7)	-.11	-.15	-.47***	-.31***	-.67***	-.18**	-				
Group norm (8)	-.00	-.01	.17**	.10	.28***	-.02	-.45***	-			
Group-id (9)	-.02	-.00	-.06	-.07	-.02	-.05	.00	-.12	-		
Action planning (10)	.07	.11	.13	.30***	-.04	.33***	-.03	-.11	-.02	-	
Behaviour at T2 (11)	.09	.02	.13	.07	.43***	.07	-.41***	.25***	-.16*	.16*	-
α	.91	$r = .72$	$r = .77$	.95	-	.76	.90	$r = .70$	$r = .74$	.79	-
M	1.98	5.65	5.76	5.34	2.61	4.38	4.12	3.32	6.16	1.37	2.39
SD	1.29	1.47	1.11	1.47	1.34	1.44	1.46	0.89	0.70	0.34	1.57

Note. PBC = perceived behavioural control. Group-id = group identification.

*** $p < .001$. ** $p < .01$. * $p < .05$ (two tailed).

Table II shows that correlations of items within constructs (Pearson's r) and Cronbach's alpha varied from .70 - .95, suggesting strong internal consistency of all measures (see Nunnally, 1978). Moreover, intention to reduce smoking was significantly correlated with attitude ($r = .31$), subjective norms ($r = .42$), PBC ($r = .37$), moral norms ($r = .44$), self-identity ($r = -.31$) and action

planning ($r = .30$). However, it can be seen that prior smoking did not predict intention to reduce smoking. Behaviour at T2 (i.e., one year later) was significantly correlated with past behaviour ($r = .43$), self-identity ($r = -.41$), group norm ($r = .25$), group identification ($r = -.16$) and action planning ($r = .16$).

Predicting intentions

A hierarchical multiple regression analysis was performed to indicate the ability of the TPB (Step 1), past behaviour, moral norms, self-identity, group identification, group norm (Step 2), and the interaction terms past behaviour \times self-identity and group identification \times group norm (Step 3) to predict intention. We used mean-centred scores to minimize the problems of multicollinearity (Aiken & West, 1991)³. The results are presented in Table III.

Table III. Hierarchical multiple regression predicting intentions ($N = 145$).

	Adjusted R^2 (R^2)	Fchange	Beta
Step 1			
Attitude			.16*
Subjective norms			.33***
Perceived behavioural control	.28 (.30)	19.97***	.30***
Step 2			
Attitude			.09ns
Subjective norms			.23***
Perceived behavioural control			.26***
Past behaviour			-.20**
Moral norms			.27***
Self-identity			-.22*
Group identification			-.04ns
Group norm	.37 (.40)	4.75***	.02ns
Step 3			
Attitude			.10ns
Subjective norms			.22***
Perceived behavioural control			.26***
Past behaviour			-.16 ($p = .09$)
Moral norms			.29***
Self-identity			-.21*
Group identification			-.04ns
Group norm			-.02ns
Past behaviour \times self-identity			-.04ns
Group identification \times group norm	.38 (.43)	2.63 ($p = .08$)	.15**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

It can be seen (Table III) that the TPB components accounted for 28% (adjusted R^2) of the variance in intentions to reduce smoking. Subjective norm was the strongest predictor ($\beta = .33$, $p < .001$), followed by PBC ($\beta = .30$, $p < .001$) and attitude ($\beta = .16$, $p < .05$). In Step 2, the impact of subjective norms ($\beta = .23$, $p < .001$) and PBC ($\beta = .26$, $p < .001$) remained significant, also when the extension variables were entered into the regression analysis. Moral norms ($\beta = .27$, $p < .001$), self-identity ($\beta = -.22$, $p < .05$), and past behaviour ($\beta = -.20$, $p < .01$) predicted intentions, beyond the effect accounted for by the TPB components. The direct effect of prior smoking behaviour, i.e., in terms of the more one smoked the lower the intention to reduce one's smoking, is noteworthy considering the lack of bivariate relation between the two measures (see Table II). Such a pattern of relations between variables suggests a classical suppression effect. A more detailed analysis revealed that the direct effect of prior smoking emerged when self-identity entered the regression equation. Finally, in Step 3, we found empirical support for the interaction between group

³ We applied Royston's (1982) extension of the Shapiro and Wilk's W statistic to test whether the residuals were normally distributed. A Shapiro-Wilk score which is not significantly different from 1 indicate normality. The residuals from the regression analysis were normally distributed (Shapiro-Wilk score: .980, $p = .06$). We also tested whether the residuals were heteroscedastic (i.e., whether the variance in the residuals were associated with the predicted value) by making a scatterplot of the standardized predicted value of intention and the standardized residuals. The plots revealed that residuals were homoscedastic, supporting the use of parametric statistics (Hankins, French & Home, 2000).

identification and group norm on behavioural intention ($\beta = .15, p < .01$). This extended TPB model accounted for 38% (adjusted R^2) of the variance in intentions.

We probed the nature of the significant interaction using simple slope analysis (Aiken & West, 1991) by examining the regression lines at three levels of the hypothesized moderators, i.e., the mean level and at one standard deviation above and below the mean. The simple slope analysis revealed that when group identification increased from low, through moderate, to high, group norm went from being negatively related to intention to becoming positively related to intention ($B = -.30, ns; B = -.03, ns; B = .25, ns$, respectively). Thus, a positive effect of group norm on adolescents' intentions to reduce smoking only occurred when group identification was strong.

Predicting behaviour

A hierarchical multiple regression analysis was performed to indicate the ability of the TPB (Step 1), past behaviour, moral norms, self-identity, group identification, group norm, action planning (Step 2), and the following interaction terms: PBC \times intention, past behaviour \times self-identity, group identification \times group norm, and past behaviour \times action planning (Step 3) to predict Time 2 behaviour. Mean-centred scores were used to minimize the problems of multicollinearity (Aiken & West, 1991)⁴. The results are presented in Table IV.

Table IV. Hierarchical multiple regression predicting Time 2 behaviour ($N = 145$).

	Adjusted R^2 (R^2)	Fchange	Beta
Step 1			
Perceived behavioural control			.12ns
Intention	-.00 (.02)	0.84ns	.01ns
Step 2			
Perceived behavioural control			-.09ns
Intention			.02ns
Past behaviour			.30***
Moral norms			.07ns
Self-identity			-.21*
Group identification			-.15*
Group norm			.05ns
Action planning	.23 (.28)	8.03***	.17*
Step 3			
Perceived behavioural control			-.12ns
Intention			-.01ns
Past behaviour			.26**
Moral norms			.05ns
Self-identity			-.23*
Group identification			-.12ns
Group norm			.07ns
Action planning			.14 ($p = .08$)
Past behaviour \times action planning			-.06ns
Perceived behavioural control \times intention			-.17*
Past behaviour \times self-identity			.06ns
Group identification \times group norm	.24 (.32)	1.56ns	.04ns

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

The results of Step 1 (Table IV) showed that the TPB components failed to predict subsequent smoking behaviour one year later. However, in Step 2 prior smoking ($\beta = .30, p < .001$), self-identity ($\beta = -.21, p < .05$) and action planning ($\beta = .17, p < .05$) significantly predicted behaviour. In Step 3, the effect of action planning was borderline significant ($\beta = .14, p = .08$), while prior smoking ($\beta = .26, p < .01$), self-identity ($\beta = -.23, p < .05$) and the PBC \times intention interaction was significantly ($\beta = -.17, p < .05$) related to behaviour. This extended TPB model accounted for 24%

⁴ The residuals from the regression analysis were normally distributed (Shapiro-Wilk score: .983, $p = .06$) and homoscedastic.

(adjusted R^2) of the variance in behaviour. A closer examination also revealed that self-identity was responsible for the reduction of the behaviour-behaviour relation in the regression equation.

We probed the nature of the PBC \times intention interaction using simple slope analysis (Aiken & West, 1991), which showed that when PBC increased from low, through moderate, to high, intention went from being positively related to behaviour to being negatively related to behaviour ($B = .11$, ns; $B = -.01$, ns; $B = -.14$, ns, respectively). Thus, when the level of control was perceived to be low, the probability of remaining a smoker at Time 2 increased. On the other hand, a high degree of perceived behavioural control increased the likelihood of reducing or quitting smoking in the one-year period.

Discussion

Predicting intentions

The TPB components accounted for 28% of the variance in young adolescents' intentions to reduce smoking during the next year, a figure which is lower than the results obtained for intentions to smoke among smokers and non-smokers (see McMillan & Conner, 2003, for review). It is also lower than those obtained in a meta-analysis across 185 TPB studies (Armitage & Conner, 2001), while it is on a par with the results in studies on quitting intentions among smoking students (Moan & Rise, in press). Moreover, the results of the present study are consistent with previous TPB studies in that PBC was a relatively strong predictor of intentions (e.g., Conner et al., in press, study 1; McMillan & Conner, 2003; McMillan et al., in press; Moan & Rise, 2005). However, unlike most other TPB studies subjective norms was a more important predictor of behavioural intentions than PBC and attitudes (cf., Armitage & Conner, 2001), and its effect also remained significant after the extension predictors were included. Nevertheless, the comparatively strong effect of subjective norms, corroborate the results of a TPB study on quitting smoking among 16 year old Spanish students (Falomir & Invernizzi, 1999) as well as the results of a study predicting adolescents' aged 14 intentions to refrain from smoking (Moan & Rise, 2005), while they are at variance with a study on quitting smoking among smoking students where attitudes was the strongest predictor of intentions (Moan & Rise, in press). This may indicate that young adolescents who are smoking are more vulnerable to the opinion of valued others, i.e., perceived social pressure, than those who have been smoking for some years. The above findings might also reflect the idea that the impact of the TPB components may differ between target populations and situations (cf., Ajzen, 1991). Consistent with this reasoning Trafimow and Finlay (1996) found that subjective norms are especially important within the health domain, whereas attitudes toward the behaviour are more important in domain-general studies.

Nonetheless, the TPB extended with a set of social influence predictors along with prior frequency of smoking, increased the prediction of intention to reduce smoking substantially (adjusted $R^2 = .38$). First, the results support the idea proposed by Terry and Hogg (1996) based upon a social identity perspective that perceived group norms do influence behavioural intentions only for those who identify strongly with the reference group. The results are consistent with the findings of Shofield et al. (2001, 2003; but see Moan & Rise, 2005). Second, self-identity exerted a direct effect on intentions to reduce smoking the next year, i.e., the stronger their sense of being a smoker, the less they intended to reduce their smoking. This finding is at variance with a study on quitting intentions among students (Moan & Rise, in press) while consistent with studies among adolescents (Falomir & Invernizzi, 1999; Moan & Rise, 2005). As noted by Conner & Armitage (2002) there are two main explanations of the self-identity-intention relation. First, as posited by identity theory the longer and more often one has been smoking, the more smoking becomes embedded into the self, and the more the intention to reduce one's smoking is driven by self-identity (cf., Charnge et al., 1988). Second, individuals may be motivated to communicate their values and identity to other persons, i.e., smoking may become a communicative act in this case by showing what kind of persons they want to be (Leventhal & Cleary, 1980). Which of the two explanations that applies in this study can not be determined.

The finding that moral norms had a direct effect on adolescents' intentions to reduce smoking is consistent with the result in studies assessing quitting intentions among students (Moan & Rise,

in press) and studies conducted among adolescents (Moan & Rise, 2005; McMillan et al., in press). According to Manstead (2000) moral norms of the society at large becomes internalised during socialisation through the creation of shared meanings of the social situation between caregiver and the child. Thus, moral norm may exert its effect without much deliberation about instrumental aspects of the particular behaviour at hand as well as the opinion of and what valued others are doing, i.e., the immediate social context. Taken together these findings attest to the importance of social factors in influencing the decision to reduce smoking among young adolescents, and also confirm the notion provided by Terry & Hogg (1996) that subjective norms provide a too narrow conceptualisation of social influence within the TPB.

Another noteworthy finding is that the effect of past behaviour on intentions was suppressed by self-identity. Thus a situation of classical suppression in which the predictive power of one predictor (past behaviour) which is strongly correlated with another variable (self-identity), but uncorrelated with the outcome variable (intentions), increases its predictive utility when the suppressor is included into the regression equation (Cohen & Cohen, 1975). Substantively, this suggests that self-identity is responsible for the past behaviour-intention relation. This underscores the general idea that lack of a bivariate relation between two variables should not be taken as evidence of its predictive utility in a regression equation.

Predicting smoking behaviour

The results indicate that the TPB in terms of an additive model, failed to account for a significant portion of smoking behaviour. On the other hand, as an interactive model, i.e., among those with a high level of perceived control, behavioural intention gave a significant contribution to the prediction of smoking behaviour. This confirms the notion provided by Ajzen (1991) that when the behaviour is not under complete volitional control, PBC should moderate the relationship between intention and behaviour. However, it should be noted that the measures of intentions (intentions to reduce smoking) and smoking behaviour (frequency of smoking) did not correspond at the level of measurement to ensure a moderate to strong relation. Another plausible explanation for the lack of direct effect of intentions and PBC may be that the participants' intentions to reduce their smoking and their perceived ability to do so have changed, which is not so strange considering the fact that we are dealing with 14 year old smokers. Consistent with this reasoning Conner et al. (in press) found in a sample of adolescents (aged 11-12 years) that intentions to refrain from smoking were stronger predictors of smoking for those who had stable intentions (see Conner et al., in press, for a review). However, we were not able to test this notion in the present study. Furthermore, it should be mentioned that the long time interval between assessment of intention and subsequent behaviour may have contributed to the low predictability of intentions (Randall & Wolff, 1994; Sheeran & Orbell, 1998). Randall and Wolff (1994) found that a decline in the intention-behaviour relationship over time was particularly relevant for alcohol/drug-related activities.

Nevertheless, several of the extension variables predicted subsequent behaviour, beyond the effect accounted for by the TPB components (adjusted $R^2 = .24$). The most important predictor of smoking behaviour at T2 was smoking at T1, thus the direct effect amounted to .26 ($p < .001$). First, it should be noted that the relation between prior behaviour (i.e., frequency of smoking at T1) and later behaviour (i.e., frequency of smoking at T2), in this case $r = .43$, is above all an indication that the particular behaviour is relatively stable over time (cf., Ajzen, 2002). Thus frequency of smoking is a relatively stable behaviour, also across a period of one year among young adolescents. Second, prior smoking also had an indirect effect on behaviour mediated by self-identity, i.e., the more frequent one smokes the stronger smoking is embedded into their sense of self, and in turn the more frequently one smokes one year later. Thus there was an effect of self-identity on frequency of smoking one year later unmediated by intentions, which confirms the notion provided by Granberg and Holmberg (1990).

A number of mechanisms may be invoked to account for the direct effect of prior smoking on subsequent smoking unmediated by intentions. One explanation derives from Bargh and co-workers (e.g., Bargh & Chartrand, 1999) who argues that behaviours which are traditionally taken to be voluntary and consciously driven may in fact be under automatic control of the environment

in which the behaviour has evolved. Hence there may be a direct link between goals and the behaviour in the sense that goals activated outside an individual's conscious awareness produce predictable changes in their behaviour, thus bypassing deliberate processes. Consequently, daily smokers may have a goal to continue their smoking which is not reflected in their quitting decision. Secondly, the relation may be indicative of the operation of habits as postulated by Ouellette and Wood (1998), i.e., behaviours which are automatically elicited by situational cues. This automatic elicitation occurs because of the strong cue-response links produced by repeated performances of a particular behaviour in a particular context. Hence for behaviours which are performed frequently in stable contexts, e.g., smoking, past behaviour predicts behaviour better than do intentions. However, Verplanken (in press) found that habit operationalised as a mental construct involving features of automaticity, i.e., lack of awareness, difficulty to control, and mental efficiency, fully mediated the effect of past snacking frequency on later snacking behaviour. The impact of the TPB components was also controlled for. Thus, while repetition is necessary for a habit to develop, he concluded that habits are distinct from frequency of occurrence. Future research should test whether this notion can be supported in relation to smoking reduction/cessation as well. Third, Ajzen (2002) have sounded a warning against use of similar measurement scales at both points of time which tend to produce common method variance for the two behavioural measures but not for other TPB variables. However, empirical studies (Bamberg, Ajzen & Schmidt, 2003; Conner, Warren, Close & Sparks, 1999) indicate that this does not represent the whole explanation. One final measurement account has been provided by Rhodes and Courneya (2003) proposing that TPB cognitions may be temporally unstable and thus be unable to mediate residual variance of past behaviour.

The present study provided empirical support for a direct effect of action planning in relation to the goal of reducing smoking. The results indicated that adolescents who made plans of "how to avoid specific situations", "how to avoid specific persons", "how to avoid specific groups", and "how to find something else to do instead" were more likely to reduce or quit their smoking than individuals who did not specify such avoidance strategies. Thus, this study supports Verplanken and Faes (1999) who argued that in addition to the importance of specifying the time and place for initiating behaviours, it could be equally important to specify *what* to do or *how* to perform a behaviour. Moreover, the results in this study correspond with the result from the study of Verplanken and Faes (1999) in that planning (of how to reduce smoking) were not able to break the effect of counterintentional habits (i.e., smoking). The results are also consistent with the findings of Rise et al. (2005) who found a significant impact of action planning in relation to quitting smoking among students.

The direct effect of action planning on goal achievement was nevertheless weak (only borderline significance) for example as compared to the results reported by Rise et al. (2005). However, Rise et al. (2005) assessed action planning at Time 2 and thus it is difficult to establish whether action planning is an antecedent of behaviour (which is the usual assumption) or an inference which derives from what one has been doing in the past ("since I have quit smoking, I must have been planning to do that"). Sniehotta et al. (2005) has argued that the ideal temporal order may be to measure intention at time 1, volitional variables at time 2, and behaviour at time 3. Nevertheless, the weak impact of action planning in the present study might also be related to the fact that only plans of "how" to reduce smoking were assessed. Thus, by adding planning of "when" and "where" (i.e., which situations) to reduce smoking (cf., Rise et al., 2005), we might have obtained a larger effect of action planning. Another plausible explanation of the weak impact of action planning in this study (see also Higgins & Conner, 2003), is that students with an average smoking history of eight years (cf., Rise et al., 2005) probably have tried quitting previously and thus are more familiar with the necessary strategies that are required to succeed than adolescents. Finally, it might be that action planning may function better when it comes to approach than avoidance behaviours, and a cursory examination of literature reviews seems to support this contention (e.g., Sheeran, 2002; Orbell, 2004).

The results of the present study have a number of practical implications for interventions to encourage smokers to reduce or quit smoking in terms of the predictive power of the extended TPB model (cf., Hardeman et al., 2002). Previous smoking behaviour was the strongest predictor of behaviour, indicating that smoking is a noteworthy stable behaviour which is difficult to

change. As outlined above, research show that adolescents who are motivated to quit smoking might lack the necessary skills to transfer their intentions into actual behaviour (cf., Engels et al., 1998). Nevertheless, this study showed that adolescents who have considered various strategies in relation to reducing smoking, e.g., those who made plans of *how* they can avoid specific situations, were more likely to reduce/quit their smoking than adolescents who had not given it a thought. Moreover, this study showed that for participants with a strong perceived behavioural control, the intention-behaviour relationship was stronger, i.e., they managed to act on their intentions to a larger extent than participants with a low degree of perceived behavioural control. Thus, it might be a fruitful strategy to furnish adolescents who are motivated to quit or reduce their smoking with plans of how they can manage to reduce their smoking. Moreover, it would be useful to focus on aspects that can enhance the individuals' skills and knowledge (internal control) in order to influence smokers' intentions to reduce/quit. It may also be useful to inform the adolescents' about opportunities that would make a quit attempt easier (e.g., nicotine substitutes) and how potential obstacles should be handled (external control). Moreover, participants with a strong identity as a smoker were less likely to reduce their smoking than adolescents with a weak identity. Little explicit research guidance exists on how to change the self-identity of an individual, although creating new identities could be a possible strategy (see O'Keefe, 2002). Finally, this study showed that adolescents' motivation to reduce smoking was mainly dependent on normative influences. Thus, involving valued others (e.g., parents) in preventive efforts regarding tobacco use among adolescents is evidently important.

Potential limitations of the present study

A number of potential methodological problems with the present study should be noted. First, we applied a structured questionnaire as recommended by Ajzen and Fishbein (1980). Some studies have indicated that responses vary as a function of the format of the questionnaire (e.g., Budd, 1987; Sheeran & Orbell, 1996), while others (Armitage and Conner, 1999b) have not confirmed this finding. Armitage and Conner (1999b) found that response format did not moderate the relations between the theoretical components, but affected the pattern of predictions. However, it is not possible to test this notion in the present study. A second potential threat to the reliability and validity of the TPB measures is social desirability. One study have found some effect of social desirability on reliability of measures, and correlation between the components in the Protection motivation theory (Sheeran & Orbell, 1996), whilst other studies have not been able to confirm this finding (see Armitage & Conner, 1999b; Beck & Ajzen, 1991), indicating that the findings of Sheeran and Orbell's (1996) were artifactual (cf., Armitage & Conner, 1999b). Third, this study relied on self-report measures. Self-reports of adolescents smoking have been shown to be reliable and in agreement with biomedical indicators when measurements are carried out under optimum measurement conditions, like in the present study where strict confidentiality was assured (Dolcini, Adler & Ginsberg, 1996; Stacy, Flay, Sussman, Brown, Santi & Best, 1990). However, objective measures of smoking might result in weaker relationships (cf., Armitage & Conner, 2001; Conner et al., in press).

Conclusions

This study supports the use of the TPB in predicting intentions to reduce smoking (adjusted $R^2 = 0.28$). Moral norms, self-identity and past behaviour added 9% in the explained variance in intention, beyond the effect of the TPB components, while the group identification \times group norm interaction explained an additional 1% of the variance in intention. Nevertheless, the TPB failed as an account of subsequent smoking at least an additive model. However, the PBC \times intention interaction was significantly related to behaviour. This interactive TPB model, extended with self-identity, past behaviour and action planning, accounted for 24% of the variance in behaviour.

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Paper IV

Predicting smoking initiation among young adolescents using social influence factors and an extended theory of planned behaviour

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ABSTRACT

Aims This study tested the ability of an extended theory of planned behaviour (TPB) to predict adolescents' intentions to refrain from smoking and self-reported behaviour one year later. The impact of the smoking prevention programme BE smokeFREE (BSF) was also tested.

Design Longitudinal study of adolescents (aged 13.9 at Time 1 and 14.9 at follow-up).

Participants A total of 722 adolescents who were non-smokers at Time 1 participated in the study.

Measurements The TPB components (attitude, subjective norms, perceived behavioural control [PBC], intention), moral norms, descriptive norm, group identification, self-identity, smoking of valued others, perceived social pressure to smoke, and alcohol use was measured at Time 1. Smoking behaviour was measured at Time 2.

Findings Subjective norm and PBC accounted for 13% of the explained variance in intention. Moral norms, self-identity, group identification, descriptive norm and perceived social pressure explained 13% of the variance in intention, beyond the effect accounted for by the TPB components. Logistic regression analysis revealed that those who participated in BSF more likely remained smoke free than the control group. However, the impact of BSF became non-significant when the other variables were entered into the analysis. PBC was a significant predictor of behaviour after a year, while the impact of intentions was borderline significant ($R^2 = .05$). Past behaviour, smoking of family members, perceived social pressure to smoke and alcohol use predicted behaviour, beyond the effect accounted for by the TPB components ($R^2 = .24$).

KEYWORDS BE smokeFREE, TPB, alcohol use, past behaviour, social influence factors.

The overall prevalence of smoking in Norway has fallen sharply since 1975 (Lund, 1998), but among adolescents there has not been a decrease the last 10 to 15 years (Braverman et al., 2001; Kraft & Svendsen, 1997). Braverman et al. (2001) found that 46% of adolescents aged 13 and 15 years reported smoking daily or occasionally in 1975. Smoking declined thereafter through to 1990 (24%) but increased in 1995 (26%). Moreover, Lund and Rise (2002) reported that among 15 year olds, 43% of the girls and 31% of the boys reported smoking in 1990 while in 2000² these figures were 43% and 34% for girls and boys, respectively. Among 13 year olds 11% of the girls and 10% of the boys reported to smoke in 1990 as compared to 15% (both genders) in 2000 (Lund & Rise, 2002). Similar trends are reported in the United Kingdom, the United States and The Netherlands the last 10-20 years, i.e., a decrease in smoking prevalence has been found among adults but not among adolescents (e.g., Engels, Knibbe & Drop, 1999; Goddard & Higgins, 1999; Lund & Rise, 2002). These findings are alarming because smoking at a young age increase the risk of getting several fatal diseases (The Royal College of Physicians, 1992), and because long-term tobacco use typically begins during adolescence (Chassin et al., 1990; Pierce & Gilpin, 1996).

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² The results from 2000 are based on data from the "School Surveys", which Braverman et al. (2001) analysis' also were based on ($N = 22,127$). The same questions have been administered in November every fifth year since 1975.

This development has been taking place despite the fact that a number of tobacco prevention programs have been established. In Norway, the school-based smoking prevention programme BE smokeFREE (BSF) was implemented in 1997. In total 110 000 pupils in 8th, 9th and 10th grade (aged 12-15 years) have participated in BSF since 1997 (Lund, Lühr & Jøsendal, 2002). Although a number of studies have shown that the BSF is effective in terms of preventing adolescents from taking up smoking (Jøsendal & Aarø, 1998; Jøsendal & Aarø, 2002; Lund et al., 2002), the impact of the BSF has not yet been tested in a prospective sample since it was implemented nationwide in 1997. Moreover, a recent qualitative study showed that teachers had cut down the number of hours used on the BSF program to far less than recommended (Hetland & Aarø, 2005), and assuming that there is a clear dose-response association, the impact of BSF on adolescent smoking initiation might be weaker than observed previously. In addition, the program was based on the social influence model and recent evidence indicates that school-based interventions based on this model might not be as effective as assumed earlier (e.g., Peterson et al., 2000; Thomas, 2002). In the present study we have data to examine whether there is still an effect of the BSF related to smoking initiation among young adolescents.

A number of social and contextual influences of smoking initiation have been identified, and peer and sibling smoking are the most consistently identified predictors (Avenevoli & Merikangas, 2003; Conrad, Flay & Hill, 1992; Baker, Brandon & Chassin, 2004). On the other hand, parental smoking has been identified as an inconsistent predictor of smoking onset (e.g., Avenevoli & Merikangas, 2003). Notwithstanding, Bricker et al. (2003) found that parental smoking cessation, prior to the typical age at which children start to smoke, i.e., 8-9 years, was associated with reduced risk of their children's daily smoking 9 years later. In addition, some studies have found that the impact of parental smoking is stronger than the impact of peer smoking when predicting smoking onset using longitudinal data (e.g., DeVries et al., 2003; Engels et al., 1999; Friestad & Klepp, 1997). Studies conducted in Norway reveal similar results, i.e., that adolescents who have parents, siblings and peers who smoke are more inclined to take up smoking themselves (e.g., Friestad & Klepp, 1997; Tell et al., 1984; Øygard et al., 1995). Furthermore, a number of other factors, both distal and proximal, have been found to predict smoking initiation among adolescents, e.g., socioeconomic status, alcohol consumption and other risk-taking and problem behaviours, attitudes, normative influence variables, lack of refusal skills (self-efficacy) and intentions (e.g., Conrad et al., 1992; Goddard, 1990; Tell et al., 1984; Tyas & Pederson, 1998). Consistent with this, some studies have explored integrative models of the antecedents to adolescent smoking, i.e., including both distal and proximal factors (Carvajal et al., 2004; De Vries et al., 1995; Engels et al., 1999; Wilkinson & Abraham, 2004).

In this study we will examine the impact of parental smoking, siblings and friends smoking, and alcohol use, along with an extended version of the Theory of planned Behaviour (TPB) (Ajzen, 1991) in predicting adolescents' intentions to refrain from smoking and self-reported smoking behaviour after one year. The TPB has been successful in predicting a wide range of behaviours (Armitage & Conner, 2001; Godin & Kok, 1996), including smoking among adolescents (Carvajal et al., 2004; Conner et al., in press; Higgins & Conner, 2003; McMillan, Higgins & Conner, in press; Moan & Rise, 2005; Wilkinson & Abraham, 2004). Only one study seems to have applied the TPB to predict smoking among non-smoking (at Time 1) young adolescents (cf. Conner et al., in press). In addition, we wanted to examine whether distal social influence factors could predict smoking behaviour, beyond the effect of the TPB. Studies addressing adolescent smoking have found that distal factors do predict behaviour, after the TPB variables have been accounted for (e.g., Carvajal et al., 2004; McMillan et al., in press; Wilkinson & Abraham, 2004). However, these studies concerned both smokers and non-smokers.

According to the TPB (Ajzen, 1991), the intention to perform a specific behaviour is the most important determinant of behaviour. Intentions reflects an individual's decision to exert effort to perform the behaviour and are assumed to be a function of the (i) individual's *attitude*, i.e., a positive or negative evaluation of a specific behaviour, (ii) *subjective norms*, i.e., the individual's perception that important others in his or her social environment wish or expect

him or her to behave in a certain way, and (iii) *perceived behavioural control (PBC)*. PBC is defined as the person's own perception of how easy or difficult it is to execute the behaviour, and is assumed to influence the intention to perform the behaviour. PBC can also influence the behaviour directly to the extent that it reflects actual control over the behaviour. Moreover, Ajzen (1991) suggested that in conditions of complete volitional control, the intention-behaviour relationship would be optimal, and PBC would not exert any influence on this relationship. However, when behaviour is not under complete volitional control, PBC should moderate the intention-behaviour relationship. Under such conditions, greater PBC should be associated with stronger intention-behaviour relationships. Moan and Rise (2005) found support for this assumption in predicting smoking reduction among adolescents, while Moan and Rise (in press) did not find support for this idea when predicting smoking cessation among students. In a meta-analysis of the TPB, Armitage and Conner (2001) found a significant interaction between PBC and intention in 9 of 19 (47%) studies.

The TPB components generally (cf. Armitage & Conner, 2001) and with respect to smoking (cf. McMillan & Conner, 2003) provide better prediction of intentions than behaviour. Moreover, Engels et al. (1999) found that cross-sectional analysis showed strong associations between explanatory variables (i.e., attitudes, social influence variables, self-efficacy, intentions) and smoking status (R^2 varied from 0.50 to 0.71), while only 8-14% of smoking behaviour was explained by these variables in longitudinal studies. This is consistent with other studies applying social-cognitive variables in predicting smoking onset among adolescents (see review of longitudinal studies by Conrad et al., 1992; see also Conner et al., in press). Several factors might be responsible for the great intention-behaviour gap in relation to smoking (see Engels et al., 1999; Orbell, 2004; Sheeran, 2002; Sutton, 1998). With respect to the TPB, a number of studies have shown that the model might benefit from being extended with additional predictors, both in prediction of intentions and behaviour (see Conner & Armitage, 1998; O'Keefe, 2002, for reviews).

An extended TPB

Descriptive norm, i.e., the perception of what significant others themselves *do*, which is distinct from the perception of what most people approve or disapprove (i.e., subjective norms), might act as a guideline for people when they make decisions (cf. Cialdini, Kallgren & Reno, 1990). The inclusion of descriptive norm in the TPB has improved the prediction of intentions in a wide range of behavioural areas (see Rivas & Sheeran, 2004, for meta-analysis), including adolescents smoking intentions and behaviours (e.g., DeVries et al., 1995; Grube, Morgan & McGree, 1986; McMillan et al., in press; Wilkinson & Abraham, 2004). While the measures of smoking of parents, siblings and friends comprise distal social influence, the measure of descriptive norms as applied in the present study is more specific, i.e., it corresponds with the specific behaviour in question (i.e., to refrain from smoking) and a specific time frame (i.e., during the next year). It also reflects to what extent the particular behaviour is expected to be the norm in a specific group (i.e., among friends). Moreover, Terry and Hogg (1996) suggested that intentions would only be influenced by perceived reference group norms when group membership is a salient basis for self-definition, i.e., for subjects who identify strongly with the group. This idea has been supported in relation to adolescents' intentions to reduce smoking (Moan & Rise, 2005), and in relation to young smokers' (aged 17-20 years) intentions to smoke and their subsequent smoking behaviour (cf. Schofield et al., 2003; see also Schofield et al., 2001).

Another possible source of normative influence concerning adolescents and smoking is that there exists a pressure from e.g., friends to smoke ("*peer group pressure*"). Kobus (2003) suggests that pressures to smoke cigarettes are predominately normative, and not direct and coercive, in nature. Notwithstanding some authors suggest that overt pressures are involved in decision-making regarding tobacco use (e.g., Evans et al., 1978; Friedman, Lichtenstein & Biglan, 1985). Friedman et al. (1985) argue that pressures to smoke are implicit in the majority of smoking situations, and cite adolescents' report of cigarette offers, verbal encouragement and

teasing as evidence of such pressure. In accord with this notion, De Vries et al. (1995) found support for the inclusion of perceived social pressure (e.g., "Did you encounter pressure to smoke from your father?") beyond the effect of attitude, perceived smoking of valued others, self-efficacy and intention, both in predicting present and future smoking behaviour.

Moreover, *moral norms* of the society at large becomes internalised during adolescence, and may thus be a source of motivation regardless of much deliberation about the costs and benefits of the particular behaviour and the opinions of valued others (cf. Manstead, 2000). Studies in a wide range of behavioural areas have found that moral norms, i.e., "...the conviction that some forms of behaviour are inherently right or wrong, regardless of their personal or social consequences..." (Manstead, 2000, p. 12) predicted intention and behaviour beyond the effect of the TPB (Conner & Armitage, 1998; Manstead, 2000), including intentions and behaviours in the context of smoking (McMillan et al., in press; Moan & Rise, in press; Moan & Rise, 2005; Moan, Rise & Andersen, 2005).

Self-identity, i.e., how one describes oneself using large scale social categories (e.g., "I am a smoker"), has been shown to add to the prediction of intentions beyond the TPB components in a wide range of behavioural areas (Sparks, 2000; Rise, Sheeran & Skalle, 2003), including adolescents' smoking intentions (Falomir & Invernizzi, 1999; Moan & Rise, 2005). Thus, adolescents may be motivated to retain a sense of who they are, i.e., their selves, when considering smoking or not (Charg, Piliavin & Callero, 1988). In addition, adolescents may be motivated to communicate their identity to others, i.e., smoking may communicate what kind of person they want to be (Leventhal & Cleary, 1980). Moreover, Charg et al. (1988) suggested that there is an interaction between past behaviour and self-identity. The idea is that a particular behaviour which is performed frequently in the past, become internalised as an important sense of self. Thus, the self-identity-intention relation is expected to be stronger for individuals that have performed the behaviour frequently than for those who have performed the behaviour less frequent. Furthermore, Moan and Rise (2005) found support for the idea that those who intend to behave as implied by their self-identity will be more likely to perform the behaviour than people who intend to do something not implied by their identity (cf. Granberg & Holmberg, 1990; see also Moan & Rise, in press).

The role of *past behaviour* in the TPB is controversial (see Rhodes & Courneya, 2003). Studies across a wide range of behavioural domains have found that past behaviour predicts intention and future behaviour beyond the TPB components (e.g., Conner & Armitage, 1998; Ouellette & Wood, 1998), including adolescents smoking intentions and behaviours (De Vries et al., 1995; Higgins & Conner, 2003; McMillan et al., in press; Moan & Rise, 2005).

The present study

The present study examines the impact of BE smokeFREE and the theory of planned behaviour to understanding a sample of non-smoking Norwegian schoolchildren intentions to refrain from smoking and self-reported behaviour after one year. The predictive utility of parents, siblings and friends smoking, alcohol use, past behaviour, moral norms, self-identity, group identification, descriptive norm, perceived social pressure, and the past behaviour \times self-identity and group identification \times descriptive norm interactions in relation to intentions is also examined. We predicted that all extension variables would predict intention, beyond the effect accounted for by the TPB components. We also predicted that these variables and the interaction terms, including the PBC \times intention interaction, would significantly add to predictions of behaviour over and above the TPB variables.

METHOD

Respondents and procedure

The present study was conducted in November 2000 and November 2001. Questionnaires were sent via standard mail to pupils who were selected by drawing one pupil (born the 6th day in

every month) from 9th grade classes (with 15 or more pupils) in Norway. In total 913 adolescents (females = 460; males = 453) completed both questionnaires. All children were in a single school year and were either 13 or 14 ($M = 13.97$, $SD = 0.27$) years of age (Time 1). Questionnaires were anonymously completed in classroom time. The sample contained 739 (81%) non-smokers. However, due to missing data, 17 participants were excluded from the analysis. Our final sample, on which all analysis are reported, consisted of 722 non-smokers (Time 1). Among the non-smokers, 624 (86.4.2%) reported never smoking while 98 (13.6%) reported having quit smoking. There were 345 (47.8%) girls ($M = 13.88$, $SD = 0.37$) and 377 (52.2%) boys ($M = 13.86$, $SD = 0.46$) among the 722 participants.

Material

Participation in BE smokeFREE: The respondents were asked whether they had participated in BE smokeFREE. Response alternatives were Yes (coded as 1) and No (coded as 2). Of the 722 respondents 376 (52%) reported to have participated in BSF. This number corresponds with the actual registration rate which was 53% (cf. Lund et al., 2002). *Smoking of valued others* was measured with five items. "Who smoke among your family/friends?" (a) "mother/stepmother", (b) "father/stepfather", (c) "older (half) brother/sister", (d) "younger (half) brother/sister", (e) "best friend". Response alternatives were yes (coded as 1) and no (coded as 0). The items were used separately in further analysis. *Frequency of alcohol use* was reported on a five-point scale ranging from Never to Several times a week, where Never was coded as 5 and Several times a week was coded as 1. *Attitude* was measured with five items on a seven-point semantic differential scale (ranged from -3 to +3): "Not to smoke in the following year will for me be..." (1) Bad - Good, (2) Useless - Useful, (3) Unfavourable - Favourable, (4) Wrong - Right and (5) Unwise - Wise. The internal consistency of the scale was high with a Cronbach's alpha (α) of 0.96. The mean value of the five items was used in further analysis. *Subjective norms* were measured with two items on a seven-point scale, ranged from Completely disagree (1) - Completely agree (7): (1) "People that means a lot to me, think that I should not smoke in the following year", (2) "People that means a lot to me, would wish that I did not start smoking in the following year" ($r = .70$). The mean value of the two items was used in further analysis. *Perceived behavioural control* was measured with three items: "In the following year..." (1) "...I can easily refrain from smoking" and (2) "...I have full control over not starting smoking" (both ranged from Completely disagree [1] - Completely agree [7]), and (3) "...is resisting smoking" Very difficult (1) - Very easy (7) ($\alpha = .71$). The mean value of the three items was used in the analysis. *Past behaviour* was measured at T1 with the following item: "How often do you smoke?" (1) "Every day", (2) "3-5 times a week", (3) "1-2 times a week", (4) "Less than 1-2 times a week", (5) "Have quit smoking", (6) "Have never smoked". The response alternatives were Yes and No. Participants who answered Yes on alternative 5 and 6, i.e., non-smokers, were included in the analysis. "Have quit smoking" was coded as one (1) and "Have never smoked" was coded as two (2). *Moral norm* was measured with four items on a seven-point scale, ranging from Completely disagree (1) - Completely agree (7): (1) "It would be morally wrong of me to smoke", (2) "I feel a strong personal commitment not to smoke", (3) "Refraining from smoking is a moral commitment for me", and (4) "I would feel guilt if I smoked" ($\alpha = .87$). The mean value of the four items was used in further analysis. *Self-identity* was measured with three items, ranging from Completely disagree (1) - Completely agree (7): (1) "I am a good example of a person who doesn't smoke", (2) "I have strong feelings related to not smoking", and (3) "Smoking is something I seldom think about" ($\alpha = .87$). The mean value of the three items was used in further analysis. *Group identification* was measured with five items: (1) "I have much in common with my friends", (2) "I identify myself with my friends", (3) "I have strong bonds/ties with my friends", (4) "To what extent are your friends important to you?", and (5) "To what extent do you feel that you belong with your group of friends?" The three first response scales ranged from Fully disagree (1) - Fully agree (7) and the two last response scales ranged from Low degree (1) - High degree (7) ($\alpha = .82$). The mean value of the five items was used in the analyses. *Descriptive norm* was measured with two items: "How

many of your friends..." (1) "...are non-smokers in the following year?" and (2) "...will take up smoking in the following year?" The second item was reversed ($r = .73$). The response scales ranged from None of them (1) – All of them (5). The mean value of the two items was used in the analyses. *Perceived social pressure* was measured with four items: "Have someone asked the following question or said this to you?": (1) "Do you want a cigarette?", (2) "You should have a cigarette!", (3) "Have a cigarette, now!", (4) "If you don't have a cigarette, then...". The response scale ranged from Never (1) to Many times (7) ($\alpha = .73$). *Intention* was measured with four items: "In the following year..." (1) "I intend to refrain from smoking", (2) "...I will try to resist smoking", (3) "...I wish to refrain from smoking", and (4) "...I will not start smoking". The response scales ranged from Very unlikely (1) – Very likely (7) ($\alpha = .71$). The mean value of the four items was used in further analysis. *Behaviour* at Time 2 was measured using the same items included in the past behaviour measure. A dichotomous measure was computed by combining the Time 1 and Time 2 measures for the same individuals. Smoking (i.e., "every day", "3-5 times a week", "1-2 times a week" and "less than 1-2 times a week") was coded with value 1 and non-smoking (i.e., "have quit smoking" and "have never smoked") was coded with value 2.

RESULTS

Descriptive statistics and correlation's

Mean scores, standard deviations, reliability coefficients and correlations among the variables are presented in Table 1.

Table 1 shows that correlations and Cronbach's alpha was satisfactory for all scales, i.e. above .70 (see Nunnally, 1978). Moreover, intentions to refrain from smoking was correlated with behaviour at T2, best friends' smoking, alcohol use, subjective norms, PBC, past smoking behaviour, moral norms, self-identity, group identification, descriptive norm and perceived social pressure. The predictors that were strongest correlated with intention were PBC ($.34, p < .001$), moral norm ($.36, p < .001$) and self-identity ($.38, p < .001$). Behaviour at T2 was significantly correlated with all predictors, except for younger siblings' smoking, attitude, subjective norms, group identification and descriptive norm. BSF was only significantly correlated with behaviour ($.08, p < .05$). The predictors that were strongest correlated with behaviour were past behaviour ($.29, p < .001$), alcohol use ($.20, p < .001$) and perceived social pressure to smoke ($-.20, p < .001$).

Predicting intentions

To predict intentions we included the TPB components (Step 1) and the extension variables (Step 2) in the regression analysis³. Mean-centred scores were used to minimize the problems of multicollinearity (Aiken & West, 1991). The results are presented in Table 2.

Step 1 (Table 2) shows that the TPB components accounted for 13% (adjusted R^2) of the variance in intentions to refrain from smoking. PBC was the strongest predictor ($\beta = .32, p < .001$) followed by subjective norm ($\beta = .13, p < .001$) while attitude failed to predict intention ($\beta = .03, ns$). At Step 2, the impact of subjective norm and PBC remained significant, also after the extension variables were included in the model. In addition moral norms ($\beta = .18, p < .001$), self-identity ($\beta = .18, p < .001$), group identification ($\beta = .10, p < .001$), descriptive norm ($\beta = .09, p < .01$) and perceived social pressure ($\beta = -.07, p < .05$) accounted for 13% (adjusted R^2) of the variance in intentions, beyond the effect of the TPB components.

³ We applied Royston's (1982) extension of the Shapiro and Wilk's W statistic to test whether the residuals were normally distributed. A Shapiro-Wilk score which is not significantly different from 1 indicate normality. Thus, the residuals from the regression analysis were normally distributed (Shapiro-Wilk score: .980, $p = .06$). We also tested whether the residuals were heteroscedastic (i.e. whether the variance in the residuals were associated with the predicted value) by making a scatterplot of the standardized predicted value of intention and the standardized residuals. The plots revealed that residuals were homoscedastic. Thus, the results supported use of parametric statistics (Hankins, French & Horne, 2000).

Table 1 Correlation's among all the variables, mean scores, standard deviations and Cronbach's alpha (α) (N =722).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Behaviour at T2 (1)	-																		
Mother (2)	-.11***	-																	
Father (3)	-.17***	.33***	-																
Older siblings (4)	-.16***	.13***	.10**	-															
Younger siblings (5)	-.02	.11**	.07	.12***	-														
Best friend (6)	-.10***	.04	.04	.03	.01	-													
Alcohol consume (7)	.20***	-.11***	-.04	-.12***	-.06	-.17***	-												
Attitude (8)	-.03	-.04	.01	.00	.03	.02	.00	-											
Subjective norm (9)	.07	-.02	-.01	-.02	.03	-.03	-.00	.09**	-										
PBC (10)	.17***	-.08**	-.05	-.07	.03	-.16***	.16***	.05	.17***	-									
Intention (11)	.13***	.02	-.02	-.07	.01	-.10**	.13***	.06	.18***	.34***	-								
Past behaviour (12)	.29***	-.06	-.11***	-.03	.03	-.26***	.24***	.00	.04	.19***	.10**	-							
Moral norms (13)	.09**	-.03	-.03	.01	-.04	-.00	.10*	.04	.10**	.18***	.36***	.13***	-						
Self-identity (14)	.12***	-.06	-.04	-.06	.02	-.03	.13***	.00	.10**	.28***	.38***	.19***	.65***	-					
Group-Id (15)	-.03	-.03	-.02	.07	.04	.00	-.05	.11***	.14***	-.03	.14***	-.01	.08*	.03	-				
Descriptive norm (16)	.07	-.07	-.08*	-.09**	-.04	-.13**	.15***	.05	.18***	.20***	.24***	.20***	.15***	.15***	.17***	-			
Social pressure (17)	-.20***	.03	.08*	.15***	.05	.25***	-.16***	-.05	-.10**	-.20***	-.18***	-.22***	-.12***	-.18***	.10**	-.18***	-		
BE smokeFREE (18)	-.08*	.07	.02	-.01	-.03	-.06	-.06	.01	-.01	.03	.02	-.03	-.04	-.03	-.04	.03	.03	-	
α									$r = .70$	.71	.71	.71	.87	.87	.82	$r = .73$	.73		
M	1.85	0.31	0.33	0.16	0.01	0.20	4.77	2.48	6.03	6.01	6.55	5.86	5.45	5.64	5.82	5.64	1.92	1.43	
SD	0.36	0.46	0.47	0.37	0.07	0.40	0.62	1.37	1.29	1.04	0.77	0.34	1.32	1.15	0.91	1.47	1.22	0.49	

Note. Group-Id = group identification. Item 3 to 7 represents mothers smoking, fathers smoking etc.
 *** p < .001, ** p < .01, * p < .05 (two tailed).

Table 2 Predicting intention using an extended theory of planned behaviour ($N = 722$).

	Adjusted R^2 (R^2)	Fchange	Beta
Step 1			
Attitude			.03ns
Subjective norm			.13***
Perceived behavioural control	.13 (.14)	37.21***	.32***
Step 2			
Attitude			.02ns
Subjective norm			.07*
Perceived behavioural control			.22***
Past behaviour			-.07ns
Moral norm			.18***
Self-identity			.18***
Group identification			.10***
Descriptive norm			.09**
Perceived social pressure			-.07*
Mothers smoking			.06ns
Fathers smoking			-.00ns
Older siblings smoking			-.03ns
Younger siblings smoking			.01ns
Friends smoking			-.04ns
Alcohol use			.04ns
Past behaviour × self-identity			-.04ns
Group identification × descriptive norm	.26 (.28)	9.45***	-.03ns

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

The impact of BSF

From November 2000 to November 2001, 107 (14.8%) of the 722 participants in the survey reported starting smoking on a daily or occasional basis. Of those who participated in BSF ($N = 376$) 12.6% started smoking, while in the control group 18% started smoking. Logistic regression analysis showed that the difference between the group who participated in BSF and the control group was significant ($\chi^2(1) = 4.05, p < .05$) explaining 1% of the variance in the behaviour one year later (Nagelkerke $R^2 [R^2_N]$). The model had a good fit (Hosmer & Lemeshow goodness of fit $\chi^2(1) = 0.38, p = 0.537$). However, when the other predictors were entered into the analysis, the impact of BSF became non-significant. Thus, we can not conclude that the BSF had an independent impact on smoking initiation in this prospective sample of adolescents. The BSF was excluded from further analysis.

Predicting behaviour

We employed multiple logistic regression analysis to predict behaviour at Time 2. The impact of the TPB components (Step 1) and the extension variables (Step 2) was tested. Mean-centred scores were used to minimize the problems of multicollinearity (Aiken & West, 1991). The results are reported in Table 3.

Step 1 (Table 3) shows that behaviour was significantly predicted by intention and PBC ($\chi^2(2) = 22.19, p < .001$), correctly classifying 99.7% of the participants into non-smokers and 0.0% of the participants into smokers (overall percentage = 84.9). The odds ratio of 1.27 and 1.40 for intention and PBC, respectively, indicate that a high score on both variables increased the likelihood of remaining a non-smoker. The TPB variables explained 5% (Nagelkerke $R^2 [R^2_N]$) of the variance in behaviour. When the extension variables were entered into the analysis (Step 2) the impact of PBC remained significant while the intention-behaviour relationship became borderline significant. In addition, past behaviour, fathers' and older siblings' smoking, alcohol use and perceived social pressure was significantly related to behaviour ($\chi^2(15) = 78.99, p < .001$), correctly classifying 97.6% of the participants into non-smokers and 21.5% of the participants into smokers (overall percentage = 86.3). The final model was a good fit (Hosmer & Lemeshow goodness of fit $\chi^2(8) = 8.860, p = 0.354$). This extended TPB model explained 24% (R^2_N) of the variance in behaviour.

Table 3 Predicting behaviour at Time 2 using an extended theory of planned behaviour (N = 722).

	Nagelkerke		Wald test	Odds ratio	95% Confidence Interval	
	-2LL	R^2			B	ratio	Interval
Step 1						
Intention			0.24	3.73*	1.27	0.997 - 1.616
PBC	583.67	.05	0.34	12.06***	1.40	1.159 - 1.699
Step 2						
Intention			0.30	3.09 ($p=.08$)	1.34	0.967 - 1.866
PBC			0.24	4.12*	1.27	1.008 - 1.597
Past behaviour			1.50	24.29***	4.49	2.470 - 8.157
Moral norm			0.04	0.12	1.04	0.826 - 1.311
Self-identity			0.03	0.04	1.03	0.785 - 1.342
Group identification			-0.06	0.16	0.94	0.711 - 1.252
Descriptive norm			-0.11	1.64	0.90	0.762 - 1.059
Perceived social pressure			-0.19	4.80*	0.83	0.695 - 0.980
Mothers smoking			-0.21	0.68	0.81	0.492 - 1.337
Fathers smoking			-0.68	7.51**	0.51	0.312 - 0.824
Older siblings smoking			-0.81	8.55***	0.45	0.259 - 0.766
Younger siblings smoking			0.15	0.01	1.16	0.095 - 14.114
Friends smoking			0.13	0.20	1.14	0.647 - 2.003
Alcohol use			0.36	5.28**	1.43	1.054 - 1.940
PBC × intention			0.14	1.90	1.15	0.942 - 1.412
PB × self-identity			0.21	0.87	1.24	0.793 - 1.923
G-id × descriptive norm	504.68	.24	-0.01	0.01	0.99	0.824 - 1.189

Note. PBC = perceived behavioural control, PB = past smoking behaviour, G-id = group identification.

*** $p < .001$. ** $p < .01$. * $p < .05$

In the final step, the odds ratio of 4.49 for past behaviour shows that those who reported never smoking at Time 1 were over four times more likely to remain smoke free at Time 2. Moreover, the odds ratio of 0.51 and 0.45 for perceived fathers' and older siblings' smoking, respectively, show that having a father or an older sibling who smokes increased the likelihood of taking up smoking at Time 2. The odds ratio of 1.44 for alcohol use shows that alcohol use at Time 1 increased the likelihood of becoming a smoker at Time 2. Finally, the odds ratio of 0.83

for perceived social pressure shows that participants who reported being exposed to social pressure to smoke at Time 1, more likely were smokers at Time 2.

DISCUSSION

First, the results showed that there was a significant difference with respect to smoking uptake among participants in BSF and the control group. However, when the impact of the other variables were controlled for, the influence of BSF became non-significant. Thus, based on the present data we can not ascribe the differences in the two groups to BSF.

Second, the results of the integrated model suggest that the extended TPB-model was able to account for a sizeable portion of the variance in intentions to refrain from smoking over a period of one year. On the other hand, the TPB predictors was not able to account for a sizeable portion of the variance in whether or not the young adolescents were smoking or not one year later although they exerted significant effects when other predictors were not accounted for.

Third, several of the distal social influence variables along with past behaviour had direct effects on smoking behaviour unmediated by behavioural intentions. It is also noteworthy that the distal social influence variables had only weak relations to the TPB predictors (see Table 1). Taken together these findings indicate that the distal social predictors and past behaviour provide a more complete understanding of why young adolescents are smoking or not one year later than the motivational processes represented by intentions and the volitional processes represented by PBC as specified by the TPB. On the other hand, why it is so, is not so easy to explain. One point of departure is the account provided by Rhodes and Courneya (2003) as to the finding that the effect of stable individual difference variables may remain unmediated by the TPB components due to the instability of the TPB cognitions as compared to the stability of the individual difference variables. Similarly, the relation between, say smoking and smoking in the family, is a so-called structural patterned regularity in terms of being constituted by a stable and durable society, i.e., the relation exists at a sociological level of analysis (cf. Stets and Burke, 2003).

Predicting intentions

The TPB components accounted for 13% (adjusted R^2) of the variance in intentions, a figure which is lower compared to the results of a meta-analysis where the TPB components accounted for 39% of the variance in intentions (Armitage & Conner, 2001). This figure is also low compared to the results from most studies which have applied the TPB in relation to smoking (e.g., Conner et al., in press; Falomir & Invernizzi, 1999; Higgins & Conner, 2003; McMillan et al. in press; Moan & Rise, 2005; but see McMillan & Conner, 2003, for similar results). The fact that PBC was the strongest predictor of intentions in this study is in accordance with previous research applying the TPB to study adolescent smoking (see Conner et al, in press, study 1; McMillan et al., in press; Moan & Rise, 2005). Most research applying the TPB to study adolescents smoking intentions have found subjective norms to be a weak predictor (e.g., Conner et al., in press, study 1 & 2; Higgins & Conner, 2003; McMillan et al., in press). This was also the case in the present study. In contrast to some studies applying the TPB to study smoking among adolescents (e.g., Conner et al, in press, study 2; Higgins & Conner, 2003; McMillan et al., in press), attitude failed to predict intention in the present study (but see Conner et al., in press, study 1; Falomir & Invernizzi, 1999; Moan & Rise, 2005, for similar results). In light of the literature concerning *smoking onset* among adolescents, this is not surprising considering the fact that social influence variables have been stronger related to intentions and behaviour than attitudes (see for review Conrad et al., 1992). Moreover, Trafimow and Finlay (1996) found that subjective norms appear to be especially important within the health domain whereas attitudes toward the behaviour are more important in domain-general studies. In interpreting the weak effect of subjective norms, a plausible explanation is that other social influences variables are more important in relation to adolescent smoking (cf. De Vries et al., 1995; McMillan et al., in press; Moan & Rise, 2005).

The present study supported the inclusion of moral norms, self-identity, group identification, descriptive norm and perceived social pressure, which accounted for 13% (adjusted R^2) of the variance in intentions beyond the effect of the TPB components. Moral norms and self-identity were the strongest predictors of intention, after PBC. Thus, if adolescents perceive smoking to be morally wrong, they will be more motivated to remain smoke free. The inclusion of moral norms in the TPB has also been supported in relation to adolescents' intentions to smoke (McMillan et al., in press) and adolescents' intentions to reduce their smoking (Moan & Rise, 2005). Moreover, the present study confirmed the notion that the longer adolescents remains non-smokers, the more strongly motivated they will be to maintain their self-concept by continuing to be non-smokers, and consequently, the less inclined they will be to start smoking. The impact of self-identity, beyond the TPB components, has also been demonstrated in relation to adolescents' intentions to quit (Falomir & Invernizzi, 1999) and reduce their smoking (Moan & Rise, 2005). Both the results in this study and the study of Moan and Rise (2005) showed that moral norms and self-identity were stronger related to intentions than descriptive norm and subjective norms. Also, McMillan et al. (in press) found that moral norms⁴ were stronger related to intention than descriptive and subjective norms. However, to determine the extent of generality of these findings, further research on the relative impact of these variables in relation to adolescent smoking is needed.

Contrary to expectations, the assumed interaction between group identification and descriptive norm, which was supported in the study of Moan and Rise (2005; see also Schofield et al., 2001, 2003), was not confirmed in this study. However, both predictors had a direct effect on intentions. Thus, the more adolescents identify themselves with their friends, the more motivated they were to remain smoke free. Among the participants in the present study 20% reported having friends who smoked (daily or occasionally) while the majority (80%) reported having non-smokers as friends. Moreover, if they expected the norm among their friends to be not smoking, quitting smoking (cf. descriptive norm) during the next year, they were more motivated to refrain from smoking. In contrast to some studies (e.g., Grube et al., 1986; DeVries et al., 1995; McMillan et al., in press) the smoking of parents, siblings and friends (measured in terms of smoking/non-smoking) did not predict intention in this study. Thus, the significant bivariate relations that were observed (see Table 1) were mediated by intention. However, this study suggest that by specifying behaviour, timeframe and reference group, one may obtain a better understanding of the normative processes affecting adolescents motivation to refrain from smoking. Finally, perceived social pressure to smoke was negatively related to intention. Thus, those who perceived a high degree of social pressure where less motivated to refrain from smoking than those who did not perceive a social pressure to the same extent.

Predicting behaviour

The present study supported the use of the TPB in predicting behaviour after one year (Step 1, Table 3). The impact of PBC in relation to smoking initiation among adolescents is consistent with previous research (cf. Conner et al., in press, study 2; De Vries et al., 1995; Engels et al., 1999). Thus, if the participants perceived having a high degree of control over refraining from smoking at Time 1, it was more likely that they remained smoke free at Time 2. The importance of PBC in relation to adolescents smoking behaviour has also been demonstrated in other studies applying the TPB (e.g., Conner et al., in press, study 2; McMillan et al., in press; Moan & Rise, 2005). In contrast to the study conducted by De Vries et al. (1995), who found that intention was the strongest predictor of present and future smoking behaviour, the present study showed that intention only was a borderline significant predictor of behaviour after the additional variables were entered into the analysis. However, after inspecting the measures applied by De Vries et al. (1995) more carefully we found that the construct which they labelled "intention" was measured in terms of frequency of smoking (e.g., whether they smoked "once a week", "every day" etc.). Thus, it corresponds with our measures of past and future smoking

⁴ Note that McMillan et al. (in press) did not include a measure of self-identity in their study.

behaviour. The fact that intention (measured in accordance with Fishbein & Ajzen, 1975) only was borderline significant adds to the findings in other studies which have applied the TPB to predict smoking behaviours (e.g., Conner et al., in press, study 2; Godin et al., 1992; Johnston et al., 2004; McMillan et al., in press). Consistent with our findings, Conner et al. (in press; see also McMillan et al., in press) found that intention was significant in the first step of the analysis, but that it became non-significant when the other variables were entered into the model. One plausible explanation for the weak effect of intentions may be that the intentions have changed. The idea that more stable intentions are stronger predictors of smoking initiation was supported in the study of Conner et al. (in press). However, we were not able to test this notion in the present study. The long time interval between assessment of intention and subsequent behaviour may also have contributed to the low predictability of intentions. Randall and Wolff (1994) found that the assumption of a decline in the intention-behaviour relationship over time was particularly relevant for alcohol/drug-related activities (see also Engels et al., 1999). Moreover, Kremers, Mudde and De Vries (in press) found that uptake of smoking among adolescents appeared as an unplanned action, i.e., youngsters experimented with smoking without rational plans to smoke in the future. Although the point made by Kremers et al. (in press) should be further explored, their study and this study can not rule out the possibility that the weak intention-behaviour relation indicates that smoking result from other intentions, e.g., 'fitting in' or 'looking cool' (cf. McMillan et al., in press).

The present study supported the inclusion of past behaviour, smoking of family members, alcohol use and perceived social pressure in predicting behaviour, beyond the effect accounted for by the TPB components. Past smoking behaviour was by far the strongest predictor of Time 2 behaviour. Thus, non-smokers aged 14 are more likely to remain non-smokers than to start smoking, i.e., behaviour is relatively stable across a year in this age group (cf. Ajzen, 2002). This finding is consistent with other studies which have applied the TPB to predict smoking behaviour among adolescents (cf. De Vries et al., 1995; McMillan et al., in press; Moan & Rise, 2005). Moreover, several studies conducted among adolescents have shown that past smoking status is the strongest predictor of future smoking status, particularly in studies where the time-lag between the waves did not extend 1 or 2 years (see Engels et al., 1999). The direct effect of prior smoking status on later smoking behaviour, may reflect the operation of habits as postulated by Ouellette and Wood (1998), i.e., behaviours which are automatically elicited by situational cues. This automatic elicitation occurs because of the strong cue-response links produced by repeated performances of a particular behaviour in a particular context. Hence for behaviours which are performed frequently in stable contexts, past behaviour predicts behaviour better than do intentions. Ajzen (2002) argued that using similar scales when measuring past and subsequent behaviour is likely to produce common method variance so that prior behaviour may have greater predictive ability than measures with less correspondence. However, studies do indicate that common method variance does not account for the full effect of past behaviour on current behaviour (Bamberg, Ajzen & Schmidt, 2003, Conner et al., 1999).

Moreover, the results showed that smoking onset was more likely to occur if participants reported that their father and their older siblings smoked. Thus, the results are not consistent with most previous research which shows that peers and siblings smoking usually are the strongest determinants of smoking onset among adolescents (cf. Avenevoli & Merikangas, 2003; Conrad et al., 1992). However, Engels et al. (1999) found that smoking by best friend and cigarette use were strongly correlated in cross-sectional analysis, but that it did not reach significance in longitudinal studies predicting smoking onset. The effect of smoking family members was small but consistent in cross-sectional as well as longitudinal analysis (Engels et al., 1999; see DeVries et al., 2003; Friestad & Klepp, 1997, for similar results). An inspection of the correlates in the present study reveal the same pattern (see Table 1), i.e., smoking by best friend was stronger correlated with smoking status at Time 1 than on Time 2, while smoking of parents and older siblings were stronger correlated with smoking status at Time 2 than Time 1. A possible explanation of these results is that friendship change rapidly in adolescence. Hence, it might not be surprising that the impact of friends does not last over time. Moreover, the review of Avenevoli and Merikangas (2003) was mainly based on studies which relied on cross-

sectional designs, and thus, their results may be influenced by this fact. However, Conrad et al. (1992) limited their review to prospective studies on smoking onset and also found that parental smoking was an inconsistent predictor of smoking onset. The variation in the impact of parents smoking on smoking initiation among adolescents might be related to cultural differences, i.e., some studies have found that the effects of parent smoking on adolescent smoking are limited to adolescents of European and Asian descent (e.g., Sussman et al., 1987; Landrine et al., 1994).

Participants reporting drinking alcohol at Time 1, were more likely to be smoking one year later. Several studies have examined the relationship between alcohol use and smoking among adolescents, most studies relying on cross-sectional data (see Wetzels et al., 2003, for review). Results found in other longitudinal studies are inconsistent, i.e., some find that alcohol use predicts cigarette use more strongly than the converse (e.g., Jackson et al., 2002), while others identified that smoking was particularly important for subsequent alcohol use (e.g., Wetzels et al., 2003). These inconsistent findings might be related to cultural differences (e.g., Wetzels et al., 2003), but further research is needed to draw firm conclusions regarding this notion.

Finally, contrary to the assumption of Kobus (2003), i.e., that pressure to smoke cigarettes are predominately normative, and not direct and coercive in nature, the present study showed that the more social pressure the participants perceived being exposed to, the more likely they were to start smoking one year later. This is consistent with the results in the study of De Vries et al. (1995) who found a direct impact of perceived social pressure in predicting behaviour 6 (T2), 12 (T3), and 18 months (T4) after the first questionnaire was administered.

In sum, socio-cognitive predictors, e.g., perceived behavioural control and social influence variables gave good predictions of intentions. Thus, to *motivate* adolescents to refrain from smoking, future interventions should focus on such variables. For instance, the data relating to PBC indicates that it would be useful to focus on aspects that can enhance the individuals' refusal skills and knowledge (internal control) in order to influence adolescents to refrain from smoking. It may also be useful to inform the adolescents' about opportunities that would make it easier to resist smoking and how potential tempting or risky situations should be handled (external control). Moreover, the data indicates that bringing social pressure to the individual by focusing on the opinions of significant others who do not smoke, could also be a fruitful strategy. However, to obtain long-lasting effects on behaviour, the present study suggest that preventive efforts should focus on stable factors in adolescents' immediate social context, e.g., family members who smoke. Hence, the results point to the importance of involving parents in preventive work among adolescents, and to the importance of smoking cessation programmes among adults.

Potential limitations of the present study

A number of potential methodological problems with the present study should be noted. First, we applied a structured questionnaire as recommended by Ajzen and Fishbein (1980). Some studies have indicated that responses vary as a function of the format of the questionnaire (e.g., Budd, 1987; Sheeran & Orbell, 1996), while others (Armitage and Conner, 1999b) have not confirmed this finding. Armitage and Conner (1999b) found that response format did not moderate the relations between the theoretical components, but affected the pattern of predictions. However, it is not possible to say whether this may have been a problem in the present study. A second potential threat to the reliability and validity of the TPB measures is social desirability. Sheeran and Orbell (1996) found some effect of social desirability on the reliability of the measures, and the correlations between the components in the Protection motivation theory, while Beck and Ajzen (1991) and Armitage and Conner (1999b) could not confirm this finding in their studies of dishonest behaviour and food choice. Armitage and Conner (1999b) therefore suggested that Sheeran and Orbell's (1996) findings were artificial. Third, the study relied on self-report measures only. However, self-reports of adolescent smoking have been shown to be reliable and in agreement with biochemical indicators when measurements are carried out under optimum measurement conditions, like in the present study where strict confidentiality was assured (Dolcini, Adler & Ginsberg, 1996; Komro et al., 1993;

Stacy et al., 1990). However, the relationships would probably be weaker if we had employed objective measures of smoking (cf. Armitage & Conner, 2001; Conner et al., in press, study 2). Fourth, the reports on parental, sibling and friends' smoking were based on the participants self-reports. Studies where independent reports were obtained have shown that adolescents are well aware of their parents' and friends' risk behaviours (Wilks, Callan & Austin, 1989). Finally, in dealing with the fact that friendship may change in adolescence, a possible strategy would be to make participants list the names of their current friends and to check reciprocity in peer relationships (cf. DeVries et al., 2003).

CONCLUSION

This study supported the use of the TPB to predict adolescents' intentions (adjusted $R^2 = .13$), and showed that the extended version including moral norms, self-identity, group identification, descriptive norm and perceived social pressure improved the prediction of intentions (adjusted $R^2 = .26$). Moreover, the results in the present study showed that differences in smoking uptake after one year among those who participated in BSF and the control group could not be ascribed to the program. However, participants who reported having a high degree of perceived behavioural control over not starting to smoke and those who reported never smoking, more likely remained non-smokers at Time 2. Smoking onset was more likely to occur if their father and their older siblings smoked, if they perceived to be exposed to social pressure to smoke, and if they reported drinking alcohol at Time 1.

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Appendix A

Questionnaire used to collect data
presented in Paper I.

KRYSS AV FOR DET SVAR SOM PASSER BEST.

1. Er du kvinne eller mann?

- kvinne
 mann

2. Hvilket år ble du født?

19 _____

3. Hvor mange år utdanning har du etter niårig grunnskole?

_____ antall år

4. Hvis du bor sammen med en ektefelle/partner, hvor mange år utdanning har hun/han etter niårig grunnskole?

- bor ikke sammen med ektefelle/partner

5. Ta stilling til påstandene nedenfor.

De voksne bør ha lov til å røyke hvor som helst i sitt eget hjem

Det burde komme en lov som forbyr all innendørs røyking i nærheten av barn

Hvis det er god ventilasjon er det ufarlig for barn om voksne røyker i det samme rommet

Å røyke inne i nærheten av barn er å betrakte som barnemishandling

Det finnes annen innendørs luftforurensning som er viktigere for folkehelsen enn tobakksrøyk

Alle barn bør ha rett til å leve i et røykfritt hjem

6. Tror du at barn som vokser opp i hjem hvor foreldrene røyker har større sannsynlighet for:

- å begynne å røyke selv
- å få ørebetennelse
- kryptorchid
- læringsproblemer
- å få vannkopper
- å få sykdommer som lungebetennelse, bronkitt og forkjølelse
- å bli korte av vekst
- å få astma-angfall

Nei, ikke i det hele tatt

Kanskje/ Kanskje ikke

Jå, antageligvis

Jå, helt sikkert

7. Hvor stor andel av de norske foreldrene som røyker tror du røyker i nærheten av sine barn innendørs?

Nesten alle	Mer enn halvparten	Omtrent halvparten	Mindre enn halvparten	Nesten ingen
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Hvor oppholder ditt barn (født 1998) seg vanligvis på hverdager på dagtid?

- hjemme sammen med meg eller min ektefelle/partner
 i mitt hjem sammen med en dagmamma/barnepasser
 i et privat hjem sammen med en dagmamma/barnepasser
 i en barnehage
 andre steder, hvor _____

9. Røykes det innendørs i det huset hvor barnet ditt (født 1998) vanligvis oppholder seg på hverdager på dagtid?

- nei
 ja
 vet ikke

10. Ville du ha akseptert at andre som passer barnet ditt hadde røykt i nærheten av barnet?

ja, helt sikkert	ja, sannsynligvis	nei, sannsynligvis ikke	nei, sikkert ikke
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Innendørs:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Utenadørs:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10 B) Hvis din barnepasser hadde røykt inne i nærheten av barnet, i hvor stor grad ville du følt ubehag ved å ta opp forholdet?

- stort ubehag
 noe ubehag
 lite ubehag
 intet ubehag
 uaktuelt, jeg ville ikke tenkt på å ta forholdet opp

11. Hønder det at ditt barn (født 1998) er tilstede når noen røyker hjemme, i bilen eller i andre situasjoner innendørs?

	Hver dag	Fleire ganger i uka	Omtrent en gang i uka	Mindre enn en gang i uka	Aldri
I bilen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hjemme - på barnets soverom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hjemme - i det rom hvor TV er plassert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hjemme - i det rom hvor de fleste måltider spises	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre steder hjemme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
På besøk hos familie og/ eller venner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
På kafé eller restaurant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Andre steder hjemme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Finnes det faste regler hjemme hos deg som regulerer adgangen til å røyke inne?

For familiehjelleammer:

- Nei (gå til spm. 13)
 Ja, hvilke typer regler?
 Forbudt å røyke inne
 Røyking inne bare etter at barna er lagt
 Røyking bare i enkelte rom
 Røyking inne bare under kjøkkenviften
 Andre: Hvilket? _____

For gjester:

- Nei (gå til spm. 13)
 Ja, hvilke typer regler?
 Forbudt å røyke inne
 Røyking inne bare etter at barna er lagt
 Røyking bare i enkelte rom
 Røyking inne bare under kjøkkenviften
 Andre: Hvilket? _____

13. Syns du at du har fått nok informasjon om barns helsekonsekvenser ved passiv røyking?

- Jeg synes ikke jeg har fått nok informasjon
 Jeg synes jeg har fått passelig informasjon
 Jeg synes at jeg har fått nok informasjon
 Jeg synes jeg har fått for mye informasjon

14. Hvordan er dine røykevaner nå?

- jeg røyker daglig
 jeg røyker av og til
 jeg røyker aldri

15. Hvis du bor sammen med en ektefelle/partner, hvordan er hennes/hans røykevaner nå?

- han/hun røyker daglig
 han/hun røyker av og til
 han/hun røyker aldri
 jeg bor ikke sammen med en ektefelle/partner

Spørsmål 16-17 skal kun besvares av de som røyker eller bor sammen med en som røyker

16. Hvor mange sigaretter tror du at du røyker i løpet av en hel uke mens du er inne sammen med ditt barn (født 1989)?

- _____ antall sigaretter
 uaktuell, jeg røyker ikke

17. Hvor mange sigaretter tror du at din partner røyker i løpet av en hel uke mens han/hun er inne sammen med ditt barn (født 1989)?

- _____ antall sigaretter
 uaktuell, han/hun røyker ikke
 jeg bor ikke sammen med noen partner

Spørsmål 18-20 skal kun besvares av de som røyker eller som har røykt tidligere:

18. Har du noen gang i forbindelse med helsesekk eller legekontroll av ditt/dine barn mottatt råd om å endre dine røykevaner, f.eks. slutte å røyke, røyke mindre eller røyke på andre steder?
 jeg har aldri vært med ved slike undersøkelser
 nei, jeg har ikke fått råd fra helsepersonell om å endre røykevaner
 ja, jeg har blitt rådet av helsepersonell til å endre røykevaner
 jeg husker ikke

- 18b. På hvilke av følgende steder forventer du at barn og passiv røyking blir tatt opp som tema (prioritet fra 1-5, hvor 1 har høyest prioritet)?

- TV/radio
 helsestasjon
 allmennpraktiserende lege
 internet
 barselavdeling
 skole/skolefridstidning
 svangerskapskontroll
 aviser/tidsskrifter

19. Har du av hensyn til ditt/dine barn noen gang forsøkt å endre dine røykevaner?

- ja
 nei

20. Endret du dine røykevaner i løpet av den periode du, eller (hvis du er mann) din ektefelle/partner, var gravid? (Velg det svar som passer best)

- Nei, jeg hadde allerede slutet
 Nei, jeg slutet
 Ja, jeg reduserte røykingen
 Ja, jeg slutet å røyke i perioder av og så helse
 Ja, jeg begynte å røyke eller økte røykingen
 Ja, jeg slutet å røyke i slutten av svangerskapet
 Ja, jeg slutet å røyke i slutten av svangerskapet
 Ja, jeg slutet å røyke i slutten av svangerskapet
 Ja, jeg slutet å røyke i slutten av svangerskapet

Svangerskap for barn født 1998:

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvis flere barn, svangerskap for barn født 19 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Svangerskap for barn født 19 _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. Har du hørt om sifraffen Georg i forbindelse med barn og passiv røyking?

- Nei, jeg har ikke hørt om sifraffen Georg
 Ja, jeg har hørt om sifraffen Georg

Hvis ja - i hvilken sammenheng?

- hos jordmor
 i barnehagen
 på barselavdelingen
 ved hjemmebesøk av helseøster etter fødselen
 på helsestasjonen
 i aviser/tidsskrifter
 i Bykampen på TV2
 hos venner av meg eller mitt barn
 i Kristiansand Dyreværk på skolen
 andre steder:

22. Dersom du eller ditt barn (født 1989) har mottatt sifraffen Georg-materiell ved barselavdeling eller helsestasjon, ble temnet passiv røyking tatt opp som tema ved overrøkkelsen?

- ja
 nei
 husker ikke
 har ikke mottatt sifraffen Georg-materiell ved de nevnte arenaene

29. Ta stilling til følgende utsagn ved å sette ett kryss per linje.

	Svært usamsynlig				Svært samsynlig
a) Jeg forventer at jeg ikke vil komme til å røyke inne når barnet mitt er tilstede	<input type="checkbox"/>	Q2	<input type="checkbox"/>	Q3	<input type="checkbox"/>
b) Det er sannsynlig at jeg ikke vil komme til å røyke inne når barnet mitt er tilstede	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
c) Jeg tror ikke jeg vil komme til å røyke inne når barnet mitt er tilstede	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>

30. Ta stilling til følgende spørsmål ved å sette ett kryss per linje:

	Ingen				Alle
a) Hvor mange av venninnene/vennene dine røyker?	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
b) Tenk på dine venner/venner. I hvilken grad ville de vært enige i at det er bra å ikke røyke?	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
c) Jeg har mye til felles med mine venner/venner	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
d) Jeg identifiserer meg med mine venner/venner	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
e) Jeg føler sterke bånd til mine venner/venner	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
f) I hvilken grad føler du tilhørighet til dine venner/venner	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
g) I hvilken grad er dine venner/venner viktige for deg?	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>

31. Tenk deg at følgende situasjoner oppstår når barnet ditt er inne og tilstede:

I) En venninne/venn kommer på besøk og spør om hun/han kan tenne seg en røyk. Hvor sannsynlig er det at du gjør følgende:

	Svært usamsynlig				Svært samsynlig
a) Tillater venninnen/vennen din å tenne seg en sigarett	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
b) Avviser spørsmålet vennlig med å si: "nei, du kan dessverre ikke røyke inne"	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
c) Ber henne/ham om å gå ut for å røyke	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>

II) Du møter en venninne/venn på kafé, restaurant e.l og hun/han tenner seg en sigarett. Hvor sannsynlig er det at du:

	Svært usamsynlig				Svært samsynlig
a) Tenner deg en røyk	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
b) Blir sittende uten å røyke	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
c) Fordrer kaféen, restauranten e.l. sammen med barnet ditt	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>

32. Hvis jeg røykte inne når barnet mitt var tilstede tror jeg at jeg etterpå ville føle:

	Svært usamsynlig				Svært samsynlig
a) anger	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
b) tilfredsstillelse	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
c) ro	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
d) engstelse	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
e) bekvemhet	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
f) skam	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
g) skyld	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
h) velbehag	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
i) sinne	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
j) frykt	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>
k) at jeg blir mer avslappet	<input type="checkbox"/>	Q1	<input type="checkbox"/>	Q2	<input type="checkbox"/>

33. Hvis du har noen kommentarer til spørreskjemaet, vennligst noter her:

HUSK Å FYLLE UT KUPONGEN PÅ BAKSIDEN AV BREVET HVIS DU VIL VÆRE MED I TREKNINGEN.

TUSEN TAKK FOR HJELPEN!

Appendix B

Questionnaires (Time 1 and Time 2) used to collect the data presented in Paper II.

KARTLEGGING AV FORHOLD KNYTTET TIL RØYKING BLANT STUDENTER

Merk: Kun de som røyker minst en sigarett daglig skal besvare denne undersøkelsen.

NBI i løpet av våren 2003 kommer vi til å foreta en ny undersøkelse blant dagligrøykende studenter. Hvis du deltar i denne, vil du være med i trekningen av **TRE UNIVERSALGAVEKORT VERDT 500 NOK.**

Statens institutt for rusmiddelforskning, SIRUS.
Ansvarlig: Professor, Jostein Rise.

1. Er du mann eller kvinne?

Kvinne 1
Mann 2

2. Hvor gammel er du?

År

3. Hvor mange sigaretter røyker du gjennomsnittlig per dag?

Sett kun ett kryss
Mellom 1-4 1
Mellom 5-9 2
Mellom 10-14 3
Mellom 15-19 4
Mellom 20-29 5
30 + 6

4. Hvor mange ganger har du forsøkt å slutte å røyke?

Gang(er)

5. Hvor lenge holdt du opp å røyke ved ditt siste sluttforsøk?

Dager

6. Hvor lenge har du røykt?

År

7. Hvis du slutter å røyke i løpet av det neste halvåret, hvor sannsynlig tror du det er at det vil føre til at du:

Sett kun ett kryss per linje	Svært usannsynlig	Svært sannsynlig
... får mer penger til andre ting	<input type="checkbox"/> 1	<input type="checkbox"/> 7
... får bedre ånde	<input type="checkbox"/> 1	<input type="checkbox"/> 7
... legger på deg	<input type="checkbox"/> 1	<input type="checkbox"/> 7
... får bedre kondisjon	<input type="checkbox"/> 1	<input type="checkbox"/> 7
... får ros og anerkjennelse fra andre	<input type="checkbox"/> 1	<input type="checkbox"/> 7
... hoster mindre	<input type="checkbox"/> 1	<input type="checkbox"/> 7
... reduserer risikoen for å få lungetrekkf... ..	<input type="checkbox"/> 1	<input type="checkbox"/> 7
... reduserer risikoen for å få hjerte- karsykdommer	<input type="checkbox"/> 1	<input type="checkbox"/> 7
... gleder dine nærmeste	<input type="checkbox"/> 1	<input type="checkbox"/> 7
... får styrket immunforsvar	<input type="checkbox"/> 1	<input type="checkbox"/> 7
... får hvitere tenner	<input type="checkbox"/> 1	<input type="checkbox"/> 7
... får bedre hud	<input type="checkbox"/> 1	<input type="checkbox"/> 7

8. Å slutte å røyke i løpet av det neste halvåret vil for meg være:

NBI Sett ett kryss per linje

Dårlig	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Bra
Nyttig	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Nyttig
Gunstig	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Gunstig
Riktig	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Riktig
Dumt	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Klokt
Ubehagelig	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Behagelig
Utlifreds- stillende	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Tilfreds- stillende
Unoventlig	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Uventlig
Strafende	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Belønnende
Ikke gledelig	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Gledelig
Ikke moro	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Moro
Usunt	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Sunt

9. Å slutte å røyke i løpet av det neste halvåret vil få meg til å føle/oppleve meg:

NBI Sett ett kryss per linje

Trist	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Glad
Asosial	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Sosial
Kjedelig	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Interessant
Lite respektert	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Respektert
Uren	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Ren
Lite tiltrekkende	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Tiltrekkende
Ikke akseptert	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Akseptert
Viljesvak	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Viljestærk
Uselvstendig	<input type="checkbox"/> -3	<input type="checkbox"/> -2	<input type="checkbox"/> -1	<input type="checkbox"/> 0	<input type="checkbox"/> +1	<input type="checkbox"/> +2	<input type="checkbox"/> +3	Selvstendig

10. Kryss av for hvor enig eller uenig du er i følgende utsagn:

NBI Sett kun ett kryss per linje

	Helt uenig	Helt enig
• Mennesker som betyr mye for meg, synes at jeg burde slutte å røyke i løpet av det neste halvåret	<input type="checkbox"/> 1	<input type="checkbox"/> 7
• Mennesker som betyr mye for meg, ville ønske at jeg sluttet å røyke i løpet av det neste halvåret	<input type="checkbox"/> 1	<input type="checkbox"/> 7
• Mennesker som betyr mye for meg, mener at det å slutte å røyke er bra	<input type="checkbox"/> 1	<input type="checkbox"/> 7

11. Her kommer en del påstander.

Sett kun ett kryss per linje

	Svært usannsynlig	Svært sannsynlig
I løpet av det neste halvåret vil jeg enkelt kunne slutte å røyke hvis jeg vil	<input type="checkbox"/> 1	<input type="checkbox"/> 7
I løpet av det neste halvåret er det sannsynlig at jeg klarer å slutte å røyke, hvis jeg prøver	<input type="checkbox"/> 1	<input type="checkbox"/> 7
I løpet av det neste halvåret er det sannsynlig at jeg klarer å slutte å røyke, hvis jeg prøver	<input type="checkbox"/> 1	<input type="checkbox"/> 7
For meg vil det å slutte å røyke i løpet av det neste halvåret være	<input type="checkbox"/> 1	<input type="checkbox"/> 7

Hvis jeg ville, kunne jeg slutte å røkke i løpet av det neste halvåret.....

Helt galt	Helt riktig
<input type="checkbox"/> 1	<input type="checkbox"/> 2
<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/> 5	<input type="checkbox"/> 6
<input type="checkbox"/> 7	<input type="checkbox"/> 7

Hvis du prøvde å slutte å røkke i løpet av det neste halvåret, hvor stor tilro har du til at du klarer det?

Liten tilro	Stor tilro
<input type="checkbox"/> 1	<input type="checkbox"/> 2
<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/> 5	<input type="checkbox"/> 6
<input type="checkbox"/> 7	<input type="checkbox"/> 7

Hvor mye kontroll tror du at du har over å slutte å røkke i løpet av det neste halvåret?

Ingen kontroll	Fullstendig kontroll
<input type="checkbox"/> 1	<input type="checkbox"/> 2
<input type="checkbox"/> 3	<input type="checkbox"/> 4
<input type="checkbox"/> 5	<input type="checkbox"/> 6
<input type="checkbox"/> 7	<input type="checkbox"/> 7

12. Her kommer enda flere påstander.

NBI Kun ett kryss per linje

	Helt uenig	Helt enig
• Jeg ser på meg selv som en person som røyker	<input type="checkbox"/> 1	<input type="checkbox"/> 2
• Jeg er et godt eksempel på en person som røyker	<input type="checkbox"/> 1	<input type="checkbox"/> 2
• Jeg ser først og fremst på meg selv som en ikke-røyker	<input type="checkbox"/> 1	<input type="checkbox"/> 2
• Det er morselig galt av meg å røyke	<input type="checkbox"/> 1	<input type="checkbox"/> 2
• Jeg får dårlig samvittighet hvis jeg røyker	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	<input type="checkbox"/> 3	<input type="checkbox"/> 4
	<input type="checkbox"/> 5	<input type="checkbox"/> 6
	<input type="checkbox"/> 7	<input type="checkbox"/> 7

13. Ta stilling til følgende utsagn. Tenk på gruppen av røykere og ikke på enkeltpersoner som røyker.

NBI Kun ett kryss per linje

	Helt uenig	Helt enig
• Jeg vil helst ikke fortelle at jeg tilhører gruppen av røykere	<input type="checkbox"/> 1	<input type="checkbox"/> 2
• Jeg misliker å tilhøre gruppen av røykere	<input type="checkbox"/> 1	<input type="checkbox"/> 2
• Jeg vil heller tilhøre gruppen av ikke-røykere	<input type="checkbox"/> 1	<input type="checkbox"/> 2
• Jeg får dårlig samvittighet hvis jeg røyker	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	<input type="checkbox"/> 3	<input type="checkbox"/> 4
	<input type="checkbox"/> 5	<input type="checkbox"/> 6
	<input type="checkbox"/> 7	<input type="checkbox"/> 7

14. Hvis jeg prøver å slutte å røyke i løpet av det neste halvåret, og lykkes, vil jeg etterpå føle meg...

NBI Kun ett kryss per linje

	Svært usansynlig	Svært sannsynlig
...glad	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...littredt	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...slett	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...lettet	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...fintk	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	<input type="checkbox"/> 3	<input type="checkbox"/> 4
	<input type="checkbox"/> 5	<input type="checkbox"/> 6
	<input type="checkbox"/> 7	<input type="checkbox"/> 7

15. Hvis jeg prøver å slutte å røyke i løpet av det neste halvåret, og mislykkes, vil jeg etterpå føle meg...

NBI Kun ett kryss per linje

	Svært usansynlig	Svært sannsynlig
...silt	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...skamfull	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...fret	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...skyldbevisnet	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...skuffet	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...misslykket	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...deprimert	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...bekymret	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	<input type="checkbox"/> 3	<input type="checkbox"/> 4
	<input type="checkbox"/> 5	<input type="checkbox"/> 6
	<input type="checkbox"/> 7	<input type="checkbox"/> 7

16. Ta stilling til følgende spørsmål

NBI Kun ett kryss per linje

	J/A	NEI
1. Har du røykt MINST 100 sigaretter i løpet av livet ditt?	<input type="checkbox"/> 1	<input type="checkbox"/> 2
2. Hvilke av de følgende utsagnetene beskriver din nåværende situasjon best? Kryss av ved ett av alternativene.		
(a). Jeg røyker og jeg har ingen intensjon om å slutte i løpet av det neste halvåret.	<input type="checkbox"/> 1	
(b). Jeg røyker, men jeg vurderer sterkt å slutte i løpet av det neste halvåret.	<input type="checkbox"/> 2	
(c). Jeg røyker, men jeg har bestemt meg for å slutte i løpet av den neste måneden.	<input type="checkbox"/> 3	
	J/A	NEI
3. Har du forsøkt å slutte å røyke i løpet av det siste året OG lykkes i minst 24 timer	<input type="checkbox"/> 1	<input type="checkbox"/> 2

17. I løpet av det neste halvåret...

NBI Kun ett kryss per linje

	Svært usansynlig	Svært sannsynlig
...har jeg til hensikt å slutte å røyke	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...vil jeg prøve å slutte å røyke	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...planlegger jeg å slutte å røyke	<input type="checkbox"/> 1	<input type="checkbox"/> 2
...vil jeg komme til å slutte å røyke?	<input type="checkbox"/> 1	<input type="checkbox"/> 2
	<input type="checkbox"/> 3	<input type="checkbox"/> 4
	<input type="checkbox"/> 5	<input type="checkbox"/> 6
	<input type="checkbox"/> 7	<input type="checkbox"/> 7

18. Ta stilling til følgende spørsmål

NBI Kun ett kryss

	J/A	NEI
A. Har du lagt planer om NAR du skal slutte å røyke i løpet av det neste halvåret?	<input type="checkbox"/> 1	<input type="checkbox"/> 2
B. Når?		
.....(Vennligst angi hvilken måned).....		

NBI Kun ett kryss

JA NEI

C. Har du lagt detaljerte planer om **HVORDAN** du skal slutte å røyke? 1 2

D. Hvilke strategier tror du at vil du benytte deg av hvis du skal forsøke å slutte å røyke i løpet av det neste halvåret?

NBI Kun ett kryss

JA NEI

- 1. Trappe ned 1 2
 - 2. Skifte merke 1 2
 - 3. Nikotinyggegunni 1 2
 - 4. Røyke med "fett" hånd 1 2
 - 5. Bruke snus/Oliver Twist el. 1 2
 - 6. Kjøpe 10-pakninger istedenfor 20 1 2
 - 7. Ikke drikk kaffe 1 2
 - 8. Andre strategier 1 2
- Spesifiser:

E. Har du **FORTALT NOEN ANDRE** om dine sluttplaner?

NBI Kun ett kryss

JA NEI

1 2

F. Hvem?(eks. venner, foreldre, kjæreste el.)

G. Se for deg at du slutter å røyke i løpet av det neste halvåret. Har du lagt noen planer for hvordan du skal unngå å røyke i situasjoner hvor du blir fristet?

NBI Kun ett kryss

JA NEI

1 2

H. Hvilke strategier tror du at du vil komme til å benytte deg av?

NBI Kun ett kryss

JA NEI

- 1. Nikotinyggegunni 1 2
 - 2. Drikk vann 1 2
 - 3. Spise pastiller eller tyggegummi 1 2
 - 4. Unngå situasjoner hvor det røykes 1 2
 - 5. Unngå folk som røyker 1 2
 - 6. Bruke snus/Oliver Twist el. 1 2
 - 7. Andre strategier 1 2
- Spesifiser:

KARTLEGGING AV FORHOLD KNYTTET TIL RØYKING BLANT STUDENTER

Hvis du fyller ut dette skjemaet blir du med i trekningen av TRE UNIVERSALGAVERKORT VERDT 500 NOK.

Statens institutt for rusmiddelforskning, SIRUS.
Ansvarlig: Professor Jostein Rise.

7. Er du mann eller kvinne?

Kvinne 1
Mann 2

8. Hvor gammel er du?

Ar

10. Hvor mange ganger har du forsøkt å slutte å røyke?

Gang(er)

11. Hvor lenge holdt du opp å røyke ved ditt siste sluttforsøk?

Dager

12. Hvor lenge har du røykt?

Ar

9. Hvor mange sigaretter røyker du gjennomsnittlig per dag?

Sett kun ett kryss

- Jeg røyker ikke (0 sigaretter) 1
- Mellom 1-4 2
- Mellom 5-9 3
- Mellom 10-14 4
- Mellom 15-19 5
- Mellom 20-29 6
- 30 + 7

13. Ta stilling til følgende spørsmål

- 1. Har du forsøkt å slutte å røyke i løpet av det siste halve året? 1 2
- 2. Har du forsøkt å redusere røykingen din i løpet av det siste halve året? 1 2
- 3. Har du sluttet helt å røyke i løpet av det siste halve året? 1 2

14. Ta stilling til følgende spørsmål
NBI Kun ett kryss per linje

- | | | | |
|--|----------------------------|----------------------------|----------------------------|
| | Svært usannsynlig | | Svært sannsynlig |
| 1. Hvis jeg ville, kunne jeg lett ha sluttet å røyke i løpet av det siste halve året..... | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 |
| | Ingen kontroll | | <input type="checkbox"/> 4 |
| | Fullstendig kontroll | | <input type="checkbox"/> 5 |
| 2. Hvor mye kontroll opplevde du å ha over det å slutte å røyke i løpet av det siste halve året? | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 |
| | Svært vanskelig | | <input type="checkbox"/> 4 |
| | Svært lett | | <input type="checkbox"/> 5 |
| 3. For meg var det lett å slutte å røyke i løpet av det siste halve året | <input type="checkbox"/> 1 | <input type="checkbox"/> 2 | <input type="checkbox"/> 3 |
| | Svært vanskelig | | <input type="checkbox"/> 4 |
| | Svært lett | | <input type="checkbox"/> 5 |
| | Svært vanskelig | | <input type="checkbox"/> 6 |
| | Svært lett | | <input type="checkbox"/> 7 |

Appendix C

Questionnaires (Time 1 and Time 2) used to collect the data
presented in Paper III and Paper IV.

+

Kommunennummer

Skole ID

Klasse

VRF-kode

+

Røyking i norske 9. klasser

Kjære 9. klassing !

Vi undersøker røykevaner blant 9. klasser i hele Norge. Vi er derfor veldig glade for at du vil være med å bidra ved å fylle ut dette spørreskjemaet. Det er viktig at du leser instruksjonene underveis nøye.

Noen spørsmål kan virke veldig like. Prøv likevel å svare så godt du kan. Det finnes ingen riktige eller feil svar vi er bare ute etter din mening. Dessuten er alle svar hemmelige.

Spørreskjemaet består av en felles del for røykere og ikke-røykere, en del som bare skal fylles ut av deg som røyker, og en del som bare skal fylles ut av deg som ikke røyker. Fordi svarene skal leses av en maskin, er det viktig at dere bruker en blå eller svart penn når dere fyller ut skjema og at dere setter krysset innenfor ruten og ikke utenfor. Hvis dere skulle komme til å sette kryss i feil rute, fargelegg hele ruten og sett nytt kryss i riktig rute. Når dere skal skrive inn tall, begynn å skrive inn tall fra høyre, for eksempel hvis dere røyker 15 sigaretter i uka skal dette skrives slik:

1	5	antall sigaretter
---	---	-------------------

Takk for hjelpen !

Viktig!!

Før du begynner med spørsmålene skal du lage en personlig kode som består av 3 tall.

I den første ruten skriver du 1 hvis du går i 9a, 2 hvis du går i 9b, 3 hvis du går i 9c, 4 hvis du går i 9d, 5 hvis du går i 9e osv.

I de siste to rutene skal du skrive to tall for måneden du er født i. Er du født i januar blir koden 01, februar er 02, mars er 03, april er 04, mai er 05, juni er 06, juli er 07, august er 08, september er 09, oktober er 10, november er 11 og desember er 12.

Eksempel: Nils går i 9b, og er født i juni. Hans personlige kode blir da 206.

Personlig kode

+

Først kommer noen spørsmål om din bakgrunn.

1. Er du gutt eller jente?

Jente	<input type="checkbox"/>	1
Gutt	<input type="checkbox"/>	2

2. Hvor gammel er du?

<input type="text"/>	alder
----------------------	-------

3. Har du søsken

Jeg har	<input type="checkbox"/>	eldre søsken.
Jeg har	<input type="checkbox"/>	ynge søsken

4. Hva tror du at du kommer til å gjøre når du er ferdig med ungdomsskolen?

- Kan ett kryss mulig*
- Ta meg jobb eller gå i lære 1
 Gå på videregående skole
 yrkesfaglig retning..... 2
 Gå på videregående skole-
 allmennfaglig retning..... 3
 Ta et hvileår..... 4
 Være arbeidsløs..... 5
 Annet..... 6

5. Hvordan liker du deg på skolen nå for tiden?

- Kan ett kryss mulig*
- Liker meg veldig godt..... 1
 Liker meg ganske godt..... 2
 Verken/eller..... 3
 Liker meg ikke særlig godt..... 4
 Liker meg ikke i det hele tatt..... 5

6. Hvordan er stedet/byen der du bor?

- Kan ett kryss mulig*
- Færre enn 200 innbyggere 1
 Mindre tettsted (200-2000)
 innbyggere..... 2
 Mindre by/tettsted (over 2000
 innbyggere)..... 3
 Stor by (over 20.000 innbyggere) 4

+

Først kommer noen spørsmål om din bakgrunn.

7. Hvem røyker i din familie/vennekrets?

Flere svar mulig	Ja	Nei
Mor/stemor.....	<input type="checkbox"/>	<input type="checkbox"/>
Far/stefar.....	<input type="checkbox"/>	<input type="checkbox"/>
Eldre (halv-)bror/søster...	<input type="checkbox"/>	<input type="checkbox"/>
Yngre (halv-)bror/søster...	<input type="checkbox"/>	<input type="checkbox"/>
Beste venn/venninne.....	<input type="checkbox"/>	<input type="checkbox"/>

8. Hvor ofte røyker du?

Kan ett kryss mulig

Hver dag..... 1
 3-5 ganger i uken..... 2
 1-2 ganger i uken..... 3
 Sjeldnere..... 4
 Har sluttet..... 5
 Aldri røykt..... 6

9. Har du prøvd hasj?

Kan ett kryss mulig

Aldri..... 1
 1 gang..... 2
 Noen ganger..... 3
 Flere ganger..... 4

10. Bruker du snus?

Kan ett kryss mulig

Daglig..... 1
 Av og til..... 2
 Sjelden..... 3
 Aldri..... 4

11. Hvor ofte drikker du alkohol?

Kan ett kryss mulig

Flere ganger i uka..... 1
 1 gang i uka..... 2
 2 - 3 ganger i måneden..... 3
 1 gang i måneden..... 4
 Sjeldnere/aldri..... 5

12. Har klassen din vært med i VÆR røykfri?

Kan ett kryss mulig

Ja..... 1
 Nei..... 2

13. Har du skrevet under kontrakt om å ikke røyke?

Ja..... 1
 Nei..... 2

+

14. Tenk på en typisk JENTE SOM RØYKER. Hvordan vil du beskrive denne jenta ved hjelp av disse egenskapene ?

Kun ett kryss mulig pr. linje

	Stemmer		Stemmer		Stemmer		Stemmer	
	Helt	noehlunde	Verken eller	ikke	ikke i det hele tatt			
Smart.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forvirret.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Populær.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Umoden.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kul.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvbevisst.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uavhengig.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sexy.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lite tiltrekkende.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjædelig.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sympatisk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvoppatt.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moden.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. Tenk på en typisk GUTT SOM RØYKER. Hvordan vil du beskrive denne gutten ved hjelp av disse egenskapene ?

Kun ett kryss mulig pr. linje

	Stemmer		Stemmer		Stemmer		Stemmer	
	Helt	noehlunde	Verken eller	ikke	ikke i det hele tatt			
Smart.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forvirret.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Populær.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Umoden.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kul.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvbevisst.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uavhengig.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sexy.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lite tiltrekkende.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjædelig.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sympatisk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvoppatt.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moden.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. Hvor ille synes du at du er en typisk røyker ?

Kun ett kryss mulig

	Ikke	Ganske lite	Noe	Verken eller	Noe	Ganske mye	Svært mye
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. Tenk på en typisk IKKE-RØYKER. Hvordan vil du beskrive en ikke-røyker ved hjelp av disse egenskapene ?

Kun ett kryss

	Stemmer		Stemmer		Stemmer		Stemmer	
	Helt	noehlunde	Verken eller	ikke	ikke i det hele tatt			
Smart.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forvirret.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Populær.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Umoden.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kul.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvbevisst.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uavhengig.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sexy.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lite tiltrekkende.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjædelig.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sympatisk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvoppatt.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moden.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. Hvordan vil du beskrive DEG SELV ved hjelp av disse egenskapene ?

Kun ett kryss mulig pr. linje

	Stemmer		Stemmer		Stemmer		Stemmer	
	Helt	noehlunde	Verken eller	ikke	ikke i det hele tatt			
Smart.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forvirret.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Populær.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Umoden.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kul.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvbevisst.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uavhengig.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sexy.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lite tiltrekkende.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjædelig.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sympatisk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvoppatt.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moden.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. Nå kommer noen utsagn som du skal si deg enig eller uenig i.

Kun ett kryss mulig pr. linje

	Helt enig	Enig	Litt enig	Verken eller	Litt uenig	Uenig	Helt uenig
Jeg har mye til felles med mine venner/ vennegjengen.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg identifiserer meg med mine venner/ vennegjengen.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg har sterke bånd til mine venner/ vennegjengen.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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20. Nå kommer noen utsagn hvor du skal gradere hvor enig du er.

Kun ett kryss mulig pr. linje i den ruten som passer best for deg	Svært høy grad					
	2	3	4	5	6	Iten grad
I hvilken grad er dine venner/venneggjenen viktige for deg?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I hvilken grad føler du tilhørighet med dine venner/venneggjenen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. Nå kommer noen flere utsagn som du skal si deg enig eller uenig i.

Kun ett kryss mulig pr. linje	Helt enig			Helt uenig		
	Enig	Litt enig	Verken eller	Litt uenig	Uenig	Helt uenig
Jeg har det som skal til	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg mener at jeg har tilstrekkelige kvaliteter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg føler meg vanligvis som en mislykket person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg har ingenting å være stolt av	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg kan gjøre det meste likeså godt som andre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg har det bra med meg selv	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg er vanligvis fornøyd med meg selv	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22. Mange snakker om at det finnes et røykepress blant ungdom. Har du selv erfart at andre har prøvd å presse deg til å røyke mot din vilje? Her følger noen situasjoner som vi ber deg tenke over om du har opplevd. Har noen spurt eller sagt følgende:

Kun ett kryss mulig pr. linje	Flere ganger					
	2	3	4	5	6	Altri
Har du lyst på en røyk?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Du bør ta deg en røyk nå!	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nå skal du ta deg en røyk!	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvis du ikke lar deg en røyk, så	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Denne delen skal fylles ut av DEG SOM RØYKER DAGLIG ELLER AV OG TIL. Du som ikke røyker kan gå til side 13.

23. Får du lov å røyke av foreldre/foresatte?

Ja	<input type="checkbox"/>	<input type="checkbox"/>
Nei	<input type="checkbox"/>	<input type="checkbox"/>
Vet ikke	<input type="checkbox"/>	<input type="checkbox"/>

24. Vet foreldre/foresatte at du røyker?

Ja	<input type="checkbox"/>	<input type="checkbox"/>
Nei	<input type="checkbox"/>	<input type="checkbox"/>
Vet ikke	<input type="checkbox"/>	<input type="checkbox"/>

25. Ser du for deg at du røyker om 10 år?

Ja	<input type="checkbox"/>	<input type="checkbox"/>
Nei	<input type="checkbox"/>	<input type="checkbox"/>
Vet ikke	<input type="checkbox"/>	<input type="checkbox"/>

26. Liker du tanken på at du røyker om 10 år?

Ja	<input type="checkbox"/>	<input type="checkbox"/>
Nei	<input type="checkbox"/>	<input type="checkbox"/>
Vet ikke	<input type="checkbox"/>	<input type="checkbox"/>

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27. Hvor lenge har du røykt som du gjør nå?

fyll inn antall måneder

28. Hvor mange sigaretter røyker du hver dag?

fyll inn antall sigaretter

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29. Hvor mange sigaretter røyker du hver uke?

fyll inn antall sigaretter

30. Røyker du vanligvis filtersigaretter eller rullsigaretter (rullings)?

Kun ett kryss mulig

Mest filtersigaretter 1

Mest rullsigaretter (rullings) 2

Begge deler 3

Her kommer noen spørsmål om dine røykeplaner, og hva røyking gjør med deg.

31. Hvilke planer har du lagt for året som kommer når det gjelder røyking?

Kun ett kryss mulig pr. linje	Svært sannsynlig			Litt sannsynlig			Litt usannsynlig			Usannsynlig		
	Sannsynlig	Synlig	Synlig	Sannsynlig	Synlig	Synlig	Sannsynlig	Synlig	Synlig	Sannsynlig	Synlig	Synlig
Fortsatte som før	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Røyke mindre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Røyke mer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bytte til et mildere merke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stutte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

32. Min røyking gjør meg...

Kun ett kryss mulig pr. linje	Helt enig		Litt enig		Litt uenig		Helt uenig	
	Enig	Sannsynlig	Synlig	Synlig	Uenig	Sannsynlig	Synlig	Synlig
Sint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Glad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Avslappet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Irritert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stresset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stimulert	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Nå kommer en del utsagn. Kryss av for hvor sannsynlige eller usannsynlige du synes du det er.

33. Hvis jeg i det kommende året røyker mindre...

Kun ett kryss mulig pr. linje	Svært sannsynlig			Litt sannsynlig			Litt usannsynlig			Svært usannsynlig		
	Sannsynlig	Synlig	Synlig	Sannsynlig	Synlig	Synlig	Sannsynlig	Synlig	Synlig	Sannsynlig	Synlig	Synlig
... er det mindre sjansene for at jeg får kreft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... vil ikke mine venner synes at jeg er så kul	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... lever jeg lengre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... blir jeg mindre stressa	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... sparer jeg penger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... får jeg bedre helse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



34. Nå kommer en del utsagn. Kryss av for hvor enig eller uenig du er....

Kun et kryss mulig pr. linje	Helt enig	Enig	Litt enig	Verken eller	Litt uenig	Helt uenig
Jeg er redd for å få kreft.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ønsker å føle meg mindre stressa.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ønsker å ha god helse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ønsker å spare penger	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ønsker å bli sett på som kul	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ønsker å leve lenge.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

35. Å røyke mindre i det kommende året er for meg:

Sei kryss i den ruten som passer best for deg mellom de to ytterpunktene.	Helt enig	Enig	Litt enig	Verken eller	Litt uenig	Helt uenig
Bra	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nyttig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Günstig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Riktig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kløkt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

36. Nå kommer en del påstander vi ber deg ta stilling til. Sett om spørsmålene kan virke like, prøv så godt du kan!

Kun et kryss mulig pr. linje

	Helt enig	Enig	Litt enig	Verken eller	Litt uenig	Helt uenig
Mine foreldre synes at jeg skal røyke mindre i løpet av året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Min kjæreste eller en jeg kunne tenke meg å ha som kjæreste synes jeg skal røyke mindre i året som kommer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Min beste venn/venninne synes jeg skal røyke mindre i året som kommer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Min søsken synes jeg skal røyke mindre i året som kommer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I hvor stor grad ønsker du å gjøre slik som foreldrene dine synes du skal gjøre?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I hvor stor grad ønsker du å gjøre slik som kjæresten eller en du kunne tenke deg å ha som kjæreste synes du skal gjøre?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I hvor stor grad ønsker du å gjøre slik som beste venn/venninne synes du skal gjøre?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I hvor stor grad ønsker du å gjøre slik som dine søsken synes du skal gjøre?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

37. Kryss av for hvor enig eller uenig du er i følgende:

Kun et kryss mulig pr. linje	Helt enig	Enig	Litt enig	Verken eller	Litt uenig	Helt uenig
Mennesker som betyr noe for meg, synes at jeg burde røyke mindre i det kommende året.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mennesker som betyr noe for meg, ville ønske at jeg røykte mindre i det kommende året.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mennesker som betyr noe for meg, ville mislike at jeg røykte mindre i det kommende året.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

38. I året som kommer...

Kun et kryss mulig pr. linje

	Svært sannsynlig	Sannsynlig	Litt sannsynlig	Verken eller usannsynlig	Litt usannsynlig	Svært usannsynlig
...forventer jeg å være mye sammen med andre røykere på min alder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...for jeg vil bli mer avhengig av røyk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...kommer jeg til å holde meg mye hjemme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...kommer jeg til å være mye sammen med andre personer på min alder som ikke røyker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...vil jeg få mye å gjøre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...for jeg vil venne mine kommer til å røyke mindre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

39. Det blir lettere/vanskeligere å redusere røykingen min hvis...

Kun et kryss mulig pr. linje

	Mye lettere	Lettelse	Litt lettere	Verken eller vanskeligere	Litt vanskeligere	Mye vanskeligere
...jeg er mye sammen med røykere på min alder i året som kommer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... jeg blir mer avhengig av røyking det kommende året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... jeg er mye hjemme i det kommende året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...jeg er mye sammen med personer på min alder som ikke røyker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... jeg får mye å gjøre det kommende året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... vennene mine reduserer røykingen sin det kommende året	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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40. Her kommer en del påstander. Kryss av for hvor enig eller uenig du er.

<i>Kun ett kryss mulig pr. linje</i>	Helt enig	Enig	Litt enig	Verken eller	Litt uenig	Uenig	Helt uenig
...vil jeg enkelt kunne røyke mindre hvis jeg vil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...er det først og fremst opp til meg selv om jeg vil røyke mindre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...har jeg ikke noen problemer med å røyke mindre, hvis jeg virkelig vil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...vil jeg like å røyke mindre, men jeg er ikke helt sikker på om jeg klarer det	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...er det vanskelig for meg å røyke mindre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

41. I det kommende året...

<i>Kun ett kryss mulig pr. linje</i>	Høy kontroll	Utsatt kontroll	Litt kontroll	Utsatt kontroll	Utsatt kontroll	Utsatt kontroll
...vil jeg ha full kontroll over min røyking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kun ett kryss mulig pr. linje

...er det sannsynlig at jeg klarer å røyke mindre, hvis jeg prøver

<i>Kun ett kryss mulig pr. linje</i>	Svært sannsynlig	Sannsynlig	Litt sannsynlig	Verken eller	Litt usannsynlig	Utsannsynlig	Svært usannsynlig
...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kun ett kryss mulig pr. linje

...vil det å røyke mindre være

<i>Kun ett kryss mulig pr. linje</i>	Svært lett	Lett	Litt lett	Verken eller	Litt vanskelig	Vanskelig	Svært vanskelig
...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

42. Her kommer enda flere utsagn. Kryss av for hvor enig eller uenig du er.

<i>Kun ett kryss mulig pr. linje</i>	Helt enig	Enig	Litt enig	Verken eller	Litt uenig	Uenig	Helt uenig
Blir tungpusten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Får dårlig ånde	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Holder meg slank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Får lungekreft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blir mer sosial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hoster mer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Får flere venner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blir mer populær	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slapper av	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Får dårlig kondis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Får vond lukt av klærne	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Blir slankere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Konsentrerer meg bedre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Får fjertretthet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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43. Her kommer enda flere påstander. Kryss av for hvor enig eller uenig du er.

<i>Kun ett kryss mulig pr. linje</i>	Helt enig	Enig	Litt enig	Verken eller	Litt uenig	Uenig	Helt uenig
Jeg ser på meg selv som en person som røyker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg er et godt eksempel på en person som røyker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ville føle at jeg gikk glippi av noe hvis jeg ikke røykte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg har ikke noen sterke følelser til det å røyke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Røyking er ikke en viktig del av meg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ser på meg selv som en røyker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ville føle det som et tap hvis jeg måtte slutte å røyke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For meg betyr det å røyke mer enn selve handlingen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Det er moralsk galt av meg å røyke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg føler skyld hvis jeg røyker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg får dårlig samvittighet hvis jeg røyker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg kan ikke forestille meg at jeg noen gang vil endre min beslutning om å røyke mindre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Min beslutning om å røyke mindre er vel gjennomtenkt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Min avgjørelse om å røyke mindre er en riktig avgjørelse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Min beslutning om å røyke mindre er en viktig beslutning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg føler meg forpliktet til å gjennomføre min beslutning om å røyke mindre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

44. Her kommer noen nye utsagn. Kryss av for hva du synes passer.

<i>Kun ett kryss mulig pr. linje</i>	Alle	Over halvparten	Omtrent halvparten	Under halvparten	Ingen
... røyker i det kommende året?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... ville synes det var bra hvis du reduserer røykingen din i det kommende året?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... vil mislike at du røyker mindre i det kommende året?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... vil røyke mindre enn de gjør i dag, i det kommende året?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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45. Min røyking får meg til å oppleve meg som:*Kan et kryss mulig pr. linje*

	Helt enig	Enig	Litt enig	Verken eller	Litt uenig	Uenig	Helt uenig
Respektert.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attraktiv.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anerkjent.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
En del av gjengen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dum.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stolt.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uten kontroll.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Som en outsider.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

46. I det kommende året....*Kan et kryss mulig pr. linje*

	Svært sønnysnlig	Sannsynlig	Litt sannsynlig	Verken eller sannsynlig	Litt usannsynlig	Svært usannsynlig
...har jeg til hensikt å røyke mindre.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...vil jeg prøve å røyke mindre.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...planlegger jeg å røyke mindre.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...ønsker jeg å røyke mindre.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...vil jeg komme til å røyke mindre?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

47. Hvor mye har du tenkt på hvordan du skal klare å røyke mindre det kommende året?*Kan et kryss*

	Svært mye	Mye	Litt	Svært lite	Har ikke tenkt på det
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

48. Har du eventuelt lagt noen klare og konkrete planer om hvordan du skal gjennomføre din plan om å røyke mindre i det kommende året? For eksempel....*Kan et kryss mulig pr. linje*

	Ja	Nei
a) ... hvordan unngå bestemte situasjoner.....	<input type="checkbox"/>	<input type="checkbox"/>
b) ... hvordan unngå bestemte personer.....	<input type="checkbox"/>	<input type="checkbox"/>
c) ... hvordan unngå bestemte grupper/gjenger.....	<input type="checkbox"/>	<input type="checkbox"/>
d) ... hvordan finne på noe annet å gjøre i stedet.....	<input type="checkbox"/>	<input type="checkbox"/>

49. Hvor sannsynlig er det....*Kan et kryss mulig pr. linje*

	Svært sannsynlig	Sannsynlig	Litt sannsynlig	Verken sannsynlig eller usannsynlig	Litt usannsynlig	Svært usannsynlig
...at den typiske røykieren på din alder vil få lungekreft i løpet av livet sitt?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...at din røyking gjør at du får lungekreft i løpet av livet ditt?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...at din røyking gjør at du får lungekreft hvis du fortsetter å røyke resten av livet?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...at du ville lykkes med å slutte å røyke, hvis du gjorde et forsøk på det nå?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...at du vil få lungekreft i løpet av livet ditt?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

50. Er du bekymret for muligheten for....*Kan et kryss mulig pr. linje*

	Svært ubekymret	Litt ubekymret	Verken ubekymret eller bekymret	Litt bekymret	Svært bekymret
...å få lungekreft hvis du fortsetter å røyke livet ut?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...å få lungekreft, hvis du slutter å røyke i løpet av et par år?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Kan et kryss mulig pr. linje**Ikke alvorlig i det hele tatt*

	Ikke alvorlig i det hele tatt	Svært alvorlig
Hvor alvorlig ville du synes det var å få lungekreft?.....	<input type="checkbox"/>	<input type="checkbox"/>

51. Sammenlign med andre røykere på din alder....*Kan et kryss mulig pr. linje*

	Mye større sjanse	Stor sjanse	Noen større sjanse	Omtrent samme sjanse	Litt mindre sjanse	Mye mindre sjanse
...hvor stor sjanse er det for at du blir avhengig av nikotin i det kommenterte året?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...hvor stor sjanse tror du at det er for at du vil klare å røyke mindre i det kommenterte året?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...hvor stor sjanse er det for at du vil få en alvorlig sykdom på grunn av din røyking?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...hvor stor sjanse er det for at du får lungekreft i løpet av livet ditt?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...hvor stor sjanse er det for at du får lungekreft i løpet av livet ditt hvis du slutter å røyke om et par år.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...hvor stor sjanse tror du det er for at du får lungekreft i løpet av livet ditt hvis du fortsetter å røyke resten av livet?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...hvor stor sjanse tror du det er for at du vil klare å slutte å røyke, hvis du prøver?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

52. Å røyke er for meg:*Sett kryss i den ruten som passer best for deg mellom de to ytterpunktene.*

	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bra	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nyttig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gunstig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Riktig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Klokt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Du som røyker har nå fullført skjemaet, og vi takker for din deltakelse. Resten av spørsmålene gjelder de som ikke røyker.

60. Du som er IKKE-RØYKER skal svare på disse sidene. Svar så godt du kan!

53. Ser du for deg at du røyker om 10 år?
Ja 1
Nei 2
Vet ikke 3

55. Hvilke planer har du lagt for året som kommer når det gjelder røyking?

Kun ett kryss mulig pr. linje

	Svært sannsynlig	Sannsynlig	Litt sannsynlig	Verken sannsynlig eller usannsynlig	Litt usannsynlig	Usannsynlig	Svært usannsynlig
Fortsettelse ikke å røyke?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Begynne å eksperimentere (f.eks. festrøyking eller lignende)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Begynne å røyke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
et par ganger i uken?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Begynne å røyke daglig?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

56. Å la være å begynne å røyke det kommende året vil for meg være?

Satt kryss i den ruten som passer best for deg mellom de to ytterpunktene.

	Svært vanskelig	Vanskelig	Litt vanskelig	Litt	Verken vanskelig eller	Litt	Verken lett eller vanskelig	Lett	Svært lett
Bra	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nyttig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gunsstig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Riktig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Klokt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

57. Nå kommer en del spørsmål der du skal svare om du er enig eller ikke:

Kun ett kryss mulig pr. linje

	Helt enig	Enig	Litt enig	Verken enig eller	Litt uenig	Uenig	Helt uenig
Mennesker som betyr noe for meg, synes at jeg burde la være å begynne å røyke i det kommende året.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mennesker som betyr noe for meg, ville ønske at jeg lot være å begynne å røyke i det kommende året.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mennesker som betyr noe for meg, ville mislike at jeg lot være å begynne å røyke i det kommende året.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

58. I det kommende året...

Kun ett kryss mulig pr. linje

	Helt enig	Enig	Litt enig	Verken enig eller	Litt uenig	Uenig	Helt uenig
... vil jeg lett kunne la være å begynne å røyke.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... er det først og fremst opp til meg selv om jeg vil la være å begynne å røyke.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... har jeg ikke noen problemer med å la være å begynne å røyke, hvis jeg virkelig vil.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kun ett kryss mulig pr. linje

	Helt enig	Enig	Litt enig	Verken enig eller	Litt uenig	Uenig	Helt uenig
... ville jeg ikke å la være å begynne å røyke, men jeg er ikke helt sikker på om jeg klarer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
... er det vanskelig for meg å la være å begynne røyke.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

59. I det kommende året...

Satt kryss i den ruten som passer best for deg mellom de to ytterpunktene.

	Høy kontroll	Lav kontroll
... har jeg full kontroll over det å la være å begynne å røyke.	<input type="checkbox"/>	<input type="checkbox"/>

Kun ett kryss mulig pr. linje

	Svært sannsynlig	Sannsynlig	Litt sannsynlig	Verken sannsynlig eller usannsynlig	Litt usannsynlig	Usannsynlig	Svært usannsynlig
... er det sannsynlig at jeg klarer å la være å begynne å røyke, hvis jeg ville.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

60. Å la være å begynne å røyke det kommende året vil for meg være?

Satt kryss i den ruten som passer best for deg mellom de to ytterpunktene.

	Svært vanskelig	Vanskelig	Litt vanskelig	Litt	Verken vanskelig eller	Litt	Verken lett eller vanskelig	Lett	Svært lett
... er det å la være å begynne å røyke.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

61. Tenk deg at du er i følgende situasjon: Du er på en fest og mange av dine venner røyker. Du blir tilbudt en røyk av en person du liker godt. Se på situasjonen nedenfor og kryss av for hva du tror du vil gjøre.

Kun ett kryss mulig pr. linje

	Svært sannsynlig	Sannsynlig	Litt sannsynlig	Verken sannsynlig eller usannsynlig	Litt usannsynlig	Usannsynlig	Svært usannsynlig
Ikke alvorlig i det hele tatt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvor sannsynlig er det at du vil få lungekreft i løpet av livet ditt.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hvor alvorlig ville du synes det var å få lungekreft?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

61. Tenk deg at du er i følgende situasjon: Du er på en fest og mange av dine venner røyker. Du blir tilbudt en røyk av en person du liker godt. Se på situasjonen nedenfor og kryss av for hva du tror du vil gjøre.

Kun ett kryss mulig pr. linje

	Svært sannsynlig	Sannsynlig	Litt sannsynlig	Verken sannsynlig eller usannsynlig	Litt usannsynlig	Usannsynlig	Svært usannsynlig
Ta imot og prøv den?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ta i mot, men ikke prøv den?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Si "Nei takk!"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forlate situasjonen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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62. Hvor enig eller uenig er du i følgende påstande

Kun et kryss mulig pr. linje

	Helt enig	Eng enig	Lit enig	Verken eller	Lit uendig	Uenig uendig	Helt uendig
Jeg kan ikke forestille meg at jeg noen gang vil endre min beslutning om å la være å begynne å røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Min beslutning om å la være å begynne å røyke er vel gjennomtenkt.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Min avgjørelse om å la være å begynne å røyke er en tåking avgjørelse ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Min beslutning om å la være å begynne å røyke er en viktig beslutning.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg føler meg forpliktet til å gjennomføre min beslutning om å la være å begynne å røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg er et godt eksempel på en person som ikke røyker.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg har sterke følelser til det å ikke røyke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Å ikke røyke er en viktig del av hvem jeg er.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Røyking er noe jeg sjelden tenker på.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ser på meg selv som en person som er oppdatt av røyking og helse.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ser på meg selv som en person som tenker nøye over røykingens helseskader	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ser på meg selv som en helsebevisst person.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ser på meg selv som en som er svært oppdatt av røyking.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Det ville være morslig å gå ut med meg å røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg føler en sterk personlig forpliktelse til ikke å røyke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Å la være å røyke er en moralsk forpliktelse for meg.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg ville føle skyld hvis jeg røykte.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeg føler en sterk personlig forpliktelse til å ikke røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

63. Hvor mange av vennene/vennslengene din...

Kun et kryss mulig pr. linje

	Alle	Over halvparten	Omtrent halvparten	Under halvparten	Ingen
...er ikke-røykere det kommende året?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...ville synes det er bra at du ikke begynner å røyke i det kommende året?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...tor du vil komme til å begynne røyke i det kommende året?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...ville synes at det var helt hvis du begynnte å røyke i det kommende året?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

64. I det kommende året...

Kun et kryss mulig pr. linje

	Svært sannsynlig	Sann- synlig	Litt sannsynlig	Verken eller usannsynlig	Litt usannsynlig	Svært usannsynlig
...har jeg til hensikt å la være å begynne å røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...vil jeg prøve å la være å begynne å røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...planlegger jeg å la være å begynne å røyke mindre.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...ønsker jeg å la være å begynne å røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...vil jeg komme til å la være å begynne å røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

65. Sammenlignet med andre ikke-røykere på din alder...

Kun et kryss mulig pr. linje

	Mye større sjanse	Stor sjanse	Noen sjanse	Omtrent sammenlignbar sjanse	Litt mindre sjanse	Mye mindre sjanse
...hvor stor sjanse er det for at du ikke kommer til å begynne å røyke i det kommende året?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
...hvor stor sjanse er det for at du får hungekret i løpet av livet ditt?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



FOLKEHELSE

RØYKING I NORSKE 10. KLASSER

Kjære 10. klassing!

Vi undersøker røyking blant 10. klassen i hele Norge og setter stor pris på at du fyller ut dette spørreskjemaet.

Det er viktig at du leser instruksjonene underveis nøye. Noen spørsmål kan virke veldig like. Prøv likevel å svare så godt du kan. For de fleste spørsmålene finnes det ingen riktige eller gale svar. Vi er bare ute etter din mening. Dessuten er alle svar hemmelige.

Spørreskjemaet består av 3 deler:

- Del 1 skal fylles ut av både røykere og ikkerøykere.
- Del 2 skal bare fylles ut av dem som røyker, og
- Del 3 skal kun fylles ut av dem som ikke røyker.

Svarene skal leses av en maskin. Vi må derfor be dere om å følge disse retningslinjene:

- Bruk blå eller svart penn når du setter kryss i en rute.
- Sett krysser innenfor ruta og ikke utenfor. Hvis dere skulle komme til å sette kryss i feil rute, fargelegg hele ruta og sett nytt kryss i riktig rute.
- Når dere skal skrive inn tall, begynn å skrive inn tall fra høyre. For eksempel hvis dere røyker 15 sigaretter i uka skal dette skrives slik:

antall sigaretter

NB! Dette er viktig. Kryss av for hvilken måned du er født i:

Januar	<input type="checkbox"/> 01	Mai	<input type="checkbox"/> 05	September	<input type="checkbox"/> 09
Februar	<input type="checkbox"/> 02	Juni	<input type="checkbox"/> 06	Oktober	<input type="checkbox"/> 10
Mars	<input type="checkbox"/> 03	Juli	<input type="checkbox"/> 07	November	<input type="checkbox"/> 11
April	<input type="checkbox"/> 04	August	<input type="checkbox"/> 08	Desember	<input type="checkbox"/> 12

Angi hvilken klasse du går i ved å sette et kryss i en av rutene under:

10 A	<input type="checkbox"/> 1	10 D	<input type="checkbox"/> 4	10 G	<input type="checkbox"/> 7
10 B	<input type="checkbox"/> 2	10 E	<input type="checkbox"/> 5	10 H	<input type="checkbox"/> 8
10 C	<input type="checkbox"/> 3	10 F	<input type="checkbox"/> 6	Annet	<input type="checkbox"/> 9

- DEL 1 -

Disse spørsmålene skal besvares
BÅDE AV RØYKERE OG IKKERØYKERE.

1. Er du gutt eller jente?

Jente..... 1
Gutt..... 2

2. Hvor gammel er du?

Alder

3. Hvem røyker i din familie/vennekrets?

	Ja	Nei
Flere svar mulig	<input type="checkbox"/>	<input type="checkbox"/>
Mor/senor.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Fars/sidar.....	<input type="checkbox"/> 2	<input type="checkbox"/> 3
Eldre (halv-)bror/søster.....	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Yngre (halv-)bror/søster.....	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Beste venn/venninne.....	<input type="checkbox"/> 5	<input type="checkbox"/> 6

4. Hvor ofte røyker du? (Kun ett kryss)

Hver dag..... 1
3-5 dager i uken..... 2
1-2 dager i uken..... 3
Spelders..... 4
Har sluttet..... 5
Aldri røykt..... 6

5. Har du prøvd hasj? (Kun ett kryss)

Aldri..... 1
1 gang..... 2
Noen få ganger..... 3
Flere ganger..... 4

6. Bruker du snus? (Kun ett kryss)

Daglig..... 1
Av og til..... 2
Sjelden..... 3
Aldri..... 4

7. Hvor ofte drikker du alkohol?

Flere ganger i uka..... 1
1 gang i uka..... 2
2-3 ganger i måneden..... 3
1 gang i måneden..... 4

8. Har klassen din vært med i VÆR røykfri?

Ja..... 1
Nei..... 2

9. Har du skrevet under kontrakt om å ikke røyke?

Ja..... 1
Nei..... 2

10. Tenk på en typisk JENTE SOM RØYKER. Hvordan vil du beskrive denne jenta ved hjelp av disse egenskapene?

Satt ett kryss pr. linje	Stemmer ikke i det hele tatt	Stemmer ikke	Stemmer	Stemmer helt
		Ikke	Utenk eller	Stemmer
Smart.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Forvirret.....	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Populær.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Umoden.....	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
Kul.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Selvbevisst.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Uavhengig.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Sexy.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Lite tiltrekkende.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Kjædelig.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Sympatisk.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Selvopplatt.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

11. Hjelp av disse egenenskapene ?
Ser et kryss pr. linje

	Stemmer ikke i det hele tatt		Stemmer i det hele tatt	
	Ikke	Stemmer	Verken eller	Stemmer
Hensynfull	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uforsiktig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvvisig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Voksen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sosial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Usunn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Tenk på en typisk IKKERØYKER. Hvordan vil du beskrive en IKKERØYKER ved hjelp av disse egenenskapene ?
Ser et kryss pr. linje

	Stemmer ikke i det hele tatt		Stemmer i det hele tatt	
	Ikke	Stemmer	Verken eller	Stemmer
Smart	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forvirret	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Populær	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Umoden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kul	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvvisig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uansett	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lite tiltrekkende	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sev	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lite tiltrekkende	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjedelig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sympatisk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvopptatt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hensynfull	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uforsiktig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvsendig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Voksen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sosial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Usunn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Hvordan vil du beskrive DEG SELV ved hjelp av disse egenenskapene ?
Ser et kryss pr. linje

	Stemmer ikke i det hele tatt		Stemmer i det hele tatt	
	Ikke	Stemmer	Verken eller	Stemmer
Smart	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Forvirret	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Populær	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Umoden	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kul	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvvisig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uansett	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lite tiltrekkende	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sev	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lite tiltrekkende	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kjedelig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sympatisk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvopptatt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hensynfull	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uforsiktig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selvsendig	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Voksen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sosial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Usunn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Nå kommer noen flere utsagn som du skal si deg enig eller uenig i.
Ser et kryss pr. linje

	Helt uenig	Utenkelig	Enig	Verken eller	Enig	Enig	Helt enig
1. Jeg har det som skal til	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Jeg mener at jeg har tilstrekkelige kvaliteter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Jeg føler meg vanligvis som en mislykket person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Jeg har tingene i meg som er i seg selv	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Jeg kan gjøre det meste like så godt som andre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Jeg har det bra med meg selv	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Jeg er vanligvis fornøyd med meg selv	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. Mange snakker om at det finnes et røykerykk blant ungdom. Har du situert at andre har prøvd å presse deg til å røyke mot din vilje ? Her følger noen situasjoner som vi ber deg tenke over om du har opplevd. Har noen spurt eller sagt følgende:
Ser et kryss pr. linje

	Alltid	Flere ganger					
1. Har du lyst på en røyk ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Du bor i en røyk på	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Nå skal du ta deg en røyk !	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Hvis du ikke tar deg en røyk, så...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. 'Til deg som IKKE røykte i november i fjor. Her er noen spørsmål om ditt forhold til røyking det siste året (nov. 2000 – nov. 2001). Tallet av det siste året har jeg...
Ser et kryss pr. linje

	NEI	JÅ
1. ...fortsatt å ikke røyke	<input type="checkbox"/>	<input type="checkbox"/>
2. ...begynn å eksperimentere (fleks på fest)	<input type="checkbox"/>	<input type="checkbox"/>
3. ...begynn å røyke et par ganger i uken	<input type="checkbox"/>	<input type="checkbox"/>
4. ...begynn å røyke daglig	<input type="checkbox"/>	<input type="checkbox"/>

17. Til deg som RØYKTE i november i fjor. Her er noen spørsmål om ditt forhold til røyking det siste året (nov. 2000 – nov. 2001). I løpet av det siste året har jeg...

Sei et kryss pr. linje	NEI	JÅ
1. ... forsett å røyke som før	<input type="checkbox"/> 1	<input type="checkbox"/> 2
2. ... røykt mindre om før	<input type="checkbox"/> 1	<input type="checkbox"/> 2
3. ... røykt mer enn før	<input type="checkbox"/> 1	<input type="checkbox"/> 2
4. ... byttet til et mildere merke	<input type="checkbox"/> 1	<input type="checkbox"/> 2
5. ... sluttet å røyke	<input type="checkbox"/> 1	<input type="checkbox"/> 2

- DEL 2 -
Denne delen skal bare fylles ut av DEM SOM RØYKER DAGLIG ELLER AV OG TIL. Du som ikke røyker kan gå til side 11.

18. Ser du for deg at du røyker om 10 år?

Ja 1
 Nei 2
 Vet ikke 3

19. Liker du tanken på at du røyker om 10 år?

Ja 1
 Nei 2
 Vet ikke 3

20. Hvor lenge har du røykt som du gjør nå?

år

fyll inn antall måneder

23. Hvilke planer har du lagt for året som kommer når det gjelder røyking?

Sei et kryss pr. linje	Svært usansynlig	Usannsynlig	Litt usannsynlig	Verken eller	Litt sannsynlig	Sannsynlig	Svært sannsynlig
1. Forsette som før	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
2. Røyke mindre	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
3. Røyke mer	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
4. Bytte til et mildere merke	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
5. Slutte	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

24. Hvis jeg i det kommende året røyker mindre ...

Sei et kryss pr. linje	Svært usansynlig	Usannsynlig	Litt usannsynlig	Verken eller	Litt sannsynlig	Sannsynlig	Svært sannsynlig
1. ... er det mindre sjans for at jeg får kreft...	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
2. ... vil ikke minne vennene mine som jeg er så kul	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
3. ... lever jeg lengre	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
4. ... blir jeg mindre stressa	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
5. ... sparer jeg penger	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
6. ... får jeg bedre helse	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

25. Nå kommer en del utsagn. Kryss av for hvor enig eller uenig du er....

Sei et kryss pr. linje	Helt uenig	Uenig	Litt uenig	Verken eller	Litt enig	Enig	Helt enig
1. Jeg er redd for å få kreft	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
2. Jeg ønsker å bli sett på som kul	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
3. Jeg ønsker å leve lenge	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
4. Jeg ønsker å føle meg mindre stressa	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
5. Jeg ønsker å spare penger	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
6. Jeg ønsker å ha god helse	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

26. Å røyke mindre i det kommende året er for meg: (Ett kryss pr. linje!)

1. Dårlig	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
2. Unyttig	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
3. Ugunstig	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
4. Galt	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
5. Dumt	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
6. Straffende	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
7. Unoøydig	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

27. Ta stilling til følgende påstander ved å sette ett kryss per linje.

	Helt uenig	Uenig	Litt uenig	Verken eller	Litt enig	Enig	Helt enig
1. Mine foreldre synes at jeg skal røyke mindre i løpet av året som kommer	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
2. Min kjæreste eller en jeg kunne tenke meg å ha som kjæreste synes jeg skal røyke mindre i året som kommer	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
3. Min beste venn/venninne synes jeg skal røyke mindre i året som kommer	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
4. Mine søsken synes jeg skal røyke mindre i året som kommer	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
5. I hvilken grad ønsker du å gjøre slik som foreldrene dine synes du skal gjøre?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
6. I hvilken grad ønsker du å gjøre slik som kjæresten eller en du kunne tenke deg å ha som kjæreste synes du skal gjøre?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
7. I hvilken grad ønsker du å gjøre slik som beste venn/venninne synes du skal gjøre?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
8. I hvilken grad ønsker du å gjøre slik som dine søsken synes du skal gjøre?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

28. Kryss av for hvor enig eller uenig du er i følgende:

Sei et kryss pr. linje	Helt uenig	Uenig	Litt uenig	Verken eller	Litt enig	Enig	Helt enig
1. Mennesker som betyr noe for meg, synes at jeg burde røyke mindre i det kommende året	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
2. Mennesker som betyr noe for meg, ville ønske at jeg røykte mindre i det kommende året	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7
3. Mennesker som betyr noe for meg, ville mislike at jeg røykte mindre i det kommende året	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7

29. I året som kommer...

Ser et kysps pr. fluge	Svært usannsynlig	Usannsynlig	Litt usannsynlig	Verken eller	Litt sannsynlig	Sannsynlig	Svært sannsynlig
1... forventer jeg å være mye sammen med andre røykere på min alder.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2... tror jeg at jeg blir mer avhengig av røyk.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3... kommer jeg til å holde meg mye hjemme.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4... kommer jeg til å være mye sammen med andre personer på min alder som ikke røyker.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5... vil jeg få mye å gjøre.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6... tror jeg at vennene mine kommer til å røyke mindre.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

30. Det blir lettere/vanskeligere å redusere røykingen min hvis...

Ser et kysps pr. fluge	Mye vanskeligere	Verken eller	Litt lettere	Mye lettere
1... jeg er mye sammen med røykere på min alder i året som kommer.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2... jeg blir mer avhengig av røyking det kommende året.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3... jeg er mye hjemme i det kommende året.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4... jeg er mye sammen med personer på min alder som ikke røyker.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5... jeg får mye å gjøre det kommende året.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6... vennene mine reduserer røykingen sin det kommende året.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

31. På listen under finner du ulike situasjoner hvor folk blir fristet til å røyke. Vi ønsker å vite HVIKEN GRAD DU BLIR FRISTET I disse situasjonene.

Ser et kysps pr. fluge	Ikke noe	Litt	Middels	Mer	Mest
1. Når jeg er på fest sammen med venner.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Når jeg står opp om morgenen.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Når jeg er veldig nervøs og stresset.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Når jeg er på kafé og drikker kaffe, brus el.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Når jeg føler at jeg trenger en oppvarming.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Når jeg er veldig sint på noe eller noen.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Når kjæresten min eller en nær venn røyker.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Når jeg oppdager at jeg ikke har røykt på en stund.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Når ting ikke går slik jeg ønsker og jeg er frustrert.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Når jeg har spist.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

32. Her kommer en del påstander. I DET KOMMENDE ÅRET....

Ser et kysps pr. fluge	Helt uenig	Uenig	Delvis uenig	Delvis enig	Enig	Helt enig
1... vil jeg enkelt kunne røyke mindre hvis jeg vil.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2... er det først og fremst opp til meg selv om jeg vil røyke mindre.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3... har jeg ikke noen problemer med å røyke mindre, hvis jeg virkelig vil.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4... vil jeg ha full kontroll over min røyking.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

33. Tenk deg at du er i følgende situasjon: Du er sammen med venner, og noen av dem røyker. Du blir tilbudt sigaretter. Hva gjør du?

Ser et kysps pr. fluge	Svært usannsynlig	Usannsynlig	Litt usannsynlig	Verken eller	Litt sannsynlig	Sannsynlig	Svært sannsynlig
1. Tar inn og røyker en sigaret?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Tar inn og røyker flere sigaretter?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Sier "Jeg tror ikke det".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Sier "Nei takk!".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Forlater situasjonen?.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

34. Ta stilling til følgende spørsmål og utsagn:

Når ser et kysps pr. fluge	Ikke noe	Litt	Middels	Mer	Mest
1. I hvilken grad identifiserer du deg med røykere.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Hvor mye ligner du på gruppen av røykere.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Jeg har mye til felles med røykere.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Vi røykere er en enhetlig gruppe.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I hvilken grad føler du tilhørighet til røykere.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

35. Ta stilling til følgende utsagn:

Når ser et kysps pr. fluge	Helt uenig	Uenig	Delvis uenig	Delvis enig	Enig	Helt enig
1. Jeg tror at røykere har lite å være stolt av.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Jeg har gode følelser overfor røykere.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Jeg har lite respekt for røykere.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Jeg vil helst ikke fordele at jeg tilhører gruppen av røykere.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Jeg identifiserer meg med andre røykere.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Jeg ligner på andre røykere.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Gruppen røykere er en viktig del av min identitet.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Jeg vil forsøke og omgås røykere.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Jeg misliker å tilhøre gruppen av røykere.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Jeg vil heller tilhøre gruppen av "ikke-røykere".....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

36. Ta stilling til følgende utsagn:

Table with 5 columns: Statement, Helt uenig, Uenig, Liten uenig, Verken eller, Litt uenig, Enig, Helt enig. Contains 4 statements about attractiveness and smoking.

37. Ta stilling til følgende påstander ved å sette ett kryss per linje.

Table with 7 columns: Statement, Helt uenig, Uenig, Litt uenig, Verken eller, Litt uenig, Enig, Helt enig. Contains 12 statements about smoking habits and attitudes.

38. I det kommende året ...

Table with 7 columns: Statement, Svært usannsynlig, Usannsynlig, Syntlig, Usannsynlig, Litt sannsynlig, Sannsynlig, Svært sannsynlig. Contains 5 statements about future smoking.

39. Har du eventuelt lagt noen klare og konkrete planer om hvordan du skal gjennomføre din plan om å røyke mindre i det kommende året? For eksempel...

Table with 5 columns: Statement, NEI, JA. Contains 4 statements about future smoking plans.

Spørsmål 39 fortsetter... Hvis du har lagt konkrete planer om hvordan du skal klare å røyke mindre i det kommende året ...

Table with 5 columns: Statement, NEI, JA. Contains 4 statements about smoking plans.

40. Ta stilling til påstandene ved å sette ett kryss per linje.

Table with 7 columns: Statement, Helt uenig, Uenig, Litt uenig, Verken eller, Litt uenig, Enig, Helt enig. Contains 12 statements about smoking habits and attitudes.

41. Hvor sannsynlig er det....

Table with 7 columns: Statement, Svært usannsynlig, Usannsynlig, Syntlig, Usannsynlig, Litt sannsynlig, Sannsynlig, Svært sannsynlig. Contains 12 statements about smoking habits and attitudes.

42. Sammenlignet med andre 10. klassinger som røyker, hva tror du sjansen er for at du...

Table with 7 columns: Statement, Mye mindre, Mindre, Litt mindre, Omtrent lik, Litt større, Større, Mye større. Contains 3 statements about smoking habits.

36. Ta stilling til følgende utsagn:

Table with 5 columns: Statement, Helt uenig, Uenig, Litt uenig, Verken eller, Litt uenig, Enig, Helt enig. Contains 4 statements about attractiveness and smoking.

37. Ta stilling til følgende påstander ved å sette ett kryss per linje.

Table with 7 columns: Statement, Helt uenig, Uenig, Litt uenig, Verken eller, Litt uenig, Enig, Helt enig. Contains 12 statements about smoking habits and attitudes.

38. I det kommende året ...

Table with 7 columns: Statement, Svært usannsynlig, Usannsynlig, Syntlig, Usannsynlig, Litt sannsynlig, Sannsynlig, Svært sannsynlig. Contains 5 statements about future smoking.

39. Har du eventuelt lagt noen klare og konkrete planer om hvordan du skal gjennomføre din plan om å røyke mindre i det kommende året? For eksempel...

Table with 5 columns: Statement, NEI, JA. Contains 4 statements about future smoking plans.

+

43. Tenk deg en person som røyker en fime-pakning sigaretter hver dag og som begynner å røyke når han/hun er 15 år gammel. Hvor enig eller uenig er du i følgende påstander?

	Helt uenig			Helt enig		
1. "Det er ikke så farlig å røyke noen få år"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. "Hver enkelt støttet jeg bare litt skade"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. "Selv om røykengen kan skade denne personen til dalt, vil den neste generen sannsynligvis ikke gjøre noe skade"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. "Skadevirkningene av røyking slyter vanligvis ikke før en person har røykt regelmessig i mange år"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

44. Hvis du tenker på tiden da du begynte å røyke, ville du gjort det samme om igjen?

	Nei, helt sikkert ikke			Ja, helt sikkert		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- DEL 3 -

Bare de som IKKE RØYKER skal svare på de siste sidene.

45. Ser du for deg at du røyker om 10 år?

Ja.....	<input type="checkbox"/>	1	Ja.....	<input type="checkbox"/>	1
Nei.....	<input type="checkbox"/>	2	Nei.....	<input type="checkbox"/>	2
Vel ikke.....	<input type="checkbox"/>	3	Vel ikke.....	<input type="checkbox"/>	3

46. Liker du tanken på at du røyker om 10 år?

Ja.....	<input type="checkbox"/>	1	Ja.....	<input type="checkbox"/>	1
Nei.....	<input type="checkbox"/>	2	Nei.....	<input type="checkbox"/>	2
Vel ikke.....	<input type="checkbox"/>	3	Vel ikke.....	<input type="checkbox"/>	3

47. Hvilke planer har du laget for året som kommer når det gjelder røyking ?

SVært usannsynlig	Svært sannsynlig	Utsannsynlig	Litt sannsynlig	Verken eller	Litt usannsynlig	Sannsynlig	Svært sannsynlig
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Fortsett ikke å røyke?
- Begynne å eksperimentere (testrøyking el.)
- Begynne å røyke et par ganger i uket?
- Begynne å røyke daglig?

48. Å la være å begynte å røyke det kommende året vil for meg være? (Et kross pr. linje!)

1. Dødt	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input type="checkbox"/>	7	<input type="checkbox"/>	8	<input type="checkbox"/>
2. Uenig	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input type="checkbox"/>	7	<input type="checkbox"/>	8	<input type="checkbox"/>
3. Uenigst	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input type="checkbox"/>	7	<input type="checkbox"/>	8	<input type="checkbox"/>
4. Galt	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input type="checkbox"/>	7	<input type="checkbox"/>	8	<input type="checkbox"/>
5. Dumt	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input type="checkbox"/>	7	<input type="checkbox"/>	8	<input type="checkbox"/>
6. Straffende	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input type="checkbox"/>	7	<input type="checkbox"/>	8	<input type="checkbox"/>
7. Unoventlig	<input type="checkbox"/>	2	<input type="checkbox"/>	3	<input type="checkbox"/>	4	<input type="checkbox"/>	5	<input type="checkbox"/>	6	<input type="checkbox"/>	7	<input type="checkbox"/>	8	<input type="checkbox"/>

49. Nå kommer en del spørsmål der du skal svare om du er enig eller ikke:

	Helt uenig		Uenig		Litt uenig		Verken eller		Litt enig		Eng		Helt enig	
1. Memesker som beyr noe for meg, synes at jeg burde la være å begynte å røyke i det kommende året.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Memesker som beyr noe for meg, ville ønske at jeg lot være å begynte å røyke i det kommende året.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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3. Memesker som beyr noe for meg, ville mislike at jeg lot være å begynte å røyke i det kommende året.....

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

50. Her kommer en del påstander. DET KOMMENDE ÅRET...

	Helt uenig			Uenig			Litt uenig			Verken eller			Litt enig			Eng			Helt enig		
1. vil jeg let kunne la være å begynte å røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. ...er det først og fremst opp til meg selv om jeg vil la være å begynte å røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. ...har jeg ikke noen problemer med å la være å begynte å røyke, hvis jeg virkelig vil.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. ...har jeg full kontroll over det.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. ...er jeg sikker på at jeg vil la være å begynte røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. ...for jeg at jeg klarer å la være å begynte røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

51. Tenk deg at du er i følgende situasjon: Du er sammen med venner, og noen av dem røyker. Du blir tilbudt en sigarett. Hva gjør du?

	Svært usannsynlig		Svært sannsynlig		Utsannsynlig		Litt sannsynlig		Verken eller		Litt usannsynlig		Sannsynlig		Svært sannsynlig	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Tar imot og prøver den?
- Sier "Jeg tror ikke det..."
- Sier "Røyking er ikke bra"
- Sier "Nei takk!"
- Forlater situasjonen?

52. Hvor enig eller uenig er du i følgende påstander-

	Helt uenig		Uenig		Litt uenig		Verken eller		Litt enig		Eng		Helt enig	
1. Jeg kan ikke forestille meg at jeg noen gang vil endre min beslutning om å la være å begynte å røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Min beslutning om å la være å begynte å røyke er vel gjennomtenkt.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Min avgjørelse om å la være å begynte å røyke er en riktig avgjørelse.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Min beslutning om å la være å begynte å røyke er en viktig beslutning.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5. Jeg føler meg forpliktet til å gjennomføre min beslutning om å la være å begynte å røyke.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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	<i>Set et kryss pr. linje</i>									
	Helt uenig	Uenig	Litt uenig	Verken eller	Litt enig	Enig	Helt enig			
6.	Jeg er et godt eksempl på en person som ikke røyker.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		
7.	Jeg har sterke følelser til det å ikke røyke.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		
8.	Å ikke røyke er en viktig del av hvem jeg er.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		
9.	Røyking er noe jeg sjelden tenker på.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		
10.	Jeg ser på meg selv som en person som er opptatt av røyking og helse.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		
11.	Jeg ser på meg selv som en person som tenker mye over røykingens helseskader.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		
12.	Jeg ser på meg selv som en helsebevisst person.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		
13.	Jeg ser på meg selv som en som er svært opptatt av røyking.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		
14.	Det ville være moralsk galt av meg å røyke.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		
15.	Jeg føler en sterk personlig forpliktelse til ikke å røyke.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		
16.	Å la være å røyke er en moralsk forpliktelse for meg.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		
17.	Jeg ville føle skyld hvis jeg røykte.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7		

53. I det kommende året...									
<i>Set et kryss pr. linje</i>									
	Svært usannsynlig	Usannsynlig	Litt usannsynlig	Verken eller	Litt sannsynlig	Sannsynlig	Svært sannsynlig		
1.	...har jeg til hensikt å la være å begynne å røyke.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	
2.	...vil jeg prøve å la være å begynne å røyke.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	
3.	...ønsker jeg å la være å begynne å røyke.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	
4.	...vil jeg komme til å la være å begynne å røyke.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	

54. Sammenlignet med andre ikke-røykere på din alder...									
<i>Set et kryss pr. linje</i>									
	Mye mindre	Mindre	Litt mindre	Omtrent lik	Litt større	Større	Mye større		
1.	...hvor stor sjanse er det for at du ikke kommer til å begynne å røyke i det kommende året?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	
2.	...hvor stor sjanse er det for at du får lungekreft i løpet av livet ditt?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	

Appendix D

PCA performed on items used to measure the independent variables in Paper IV, and results concerning PBC accuracy (Paper II).

Principal component analysis from Paper IV:

Table 1 Principal component analysis (varimax rotation) of all items included in the following scales: Attitude (ATT), subjective norms (SN), perceived behavioural control (PBC), moral norms (MN), self-identity (S-ID), group identification (G-ID), perceived group norm (G-NORM), intention (INT) and perceived social pressure (S_PRESSURE). ($N = 722$).

	1	2	3	4	5	6	7	8
ATT_1	.93	.09	.07	.15	.04	-.02	.02	.08
ATT_2	.91	.06	.06	.05	-.10	.00	.05	.07
ATT_3	.92	.10	.11	.05	.02	.02	.09	.07
ATT_4	.94	.07	.06	.10	.01	.10	.04	-.06
ATT_5	.94	.11	.06	.11	-.04	.03	-.06	.07
SN_1	.24	.16	.10	-.06	-.07	.30	-.11	.60
SN_2	.08	.02	.24	-.02	-.17	.16	.06	.61
PBC_1	.04	.07	.38	-.02	-.12	.37	.58	-.30
PBC_2	.13	.17	.34	.11	-.06	.04	.63	.07
PBC_3	.07	.07	.12	-.03	-.04	-.09	.76	.07
MN_1	.07	.69	.34	.01	-.04	-.03	.05	.07
MN_2	.11	.77	.30	.03	.04	.02	.04	.07
MN_3	.11	.77	.16	.10	-.04	.08	.04	.05
MN_4	.02	.72	.08	.01	-.04	.13	-.11	-.17
MN_5	.08	.86	.06	.03	-.05	.03	-.05	-.02
S-ID_1	.02	.62	.26	.03	-.19	-.13	.38	.36
S-ID_2	.06	.65	.02	.09	-.06	-.05	.36	.23
S-ID_3	.11	.62	-.04	.09	-.05	-.05	.33	.30
G-ID_1	.11	.10	.10	.77	-.02	-.06	.05	-.02
G-ID_2	-.08	.06	.06	.70	.02	-.21	-.10	.05
G-ID_3	-.01	.01	.14	.67	.05	.33	.04	-.07
G-ID_4	.24	.03	.23	.65	-.06	.24	-.05	-.11
G-ID_5	.15	-.05	.02	.78	.06	.14	.05	.04
G-NORM_1	.05	-.07	.10	.19	.00	.71	-.04	.10
G-NORM_2	.02	.23	.06	.03	-.17	.69	.08	.29
INT_1	.04	.24	.60	.31	-.11	.07	.08	.15
INT_2	.09	.21	.71	.11	-.13	-.03	.01	.26
INT_3	.09	.13	.71	-.02	-.10	.05	-.10	-.04
INT_4	.03	.11	.65	.18	-.03	.15	.21	.02
S_PRESSURE_1	.04	-.15	-.02	.04	.55	.03	-.08	-.19
S_PRESSURE_2	-.03	-.03	-.16	.04	.84	-.21	-.08	-.12
S_PRESSURE_3	.01	.06	-.07	.01	.90	-.08	-.05	.08
S_PRESSURE_4	-.02	-.02	-.11	-.03	.85	.06	.07	-.02

Results concerning PBC accuracy from Paper II:

Measuring PBC accuracy

The proxy measure of actual control (PMAC)¹ was measured in the Time 2 questionnaire with 3 items corresponding with the three PBC items (Time 1): (A) If I wanted to, I could easily have quit smoking during the last six months, *very unlikely* (1) - *very likely* (7), (B) How much control did you experience that you had over trying to quit smoking during the last six months, *no control* (1) - *complete control* (7), and (C) For me it was easy to quit smoking during the last six months, *very difficult* (1) - *very easy* (7) ($\alpha = .92$). We compared participants' PBC scores with their PMAC scores (scores were standardized prior to the analysis). The correlation between PBC and PMAC was $r = .61$. However, a t test showed that participants generally overestimated their control over quitting smoking ($M_s = .19$ and $-.03$, $SD_s = 0.87$ and 0.99 , for PBC and PMAC, respectively), $t(698) = 5.05$, $p < .001$. Following Sheeran et al. (2003), we next computed PBC accuracy as the absolute difference between PBC scores (T1) and PMAC scores (T2). A one-sample t test indicated that the mean accuracy ($M = .37$) was significantly different from zero, $t(698) = 6.53$, $p < .001$ (where zero indicates perfect accuracy). We transformed the result of the absolute difference between PBC and PMAC by subtracting the score by minus one (-1). Thus, higher (or less negative scores) indicate greater accuracy ($\alpha = .69$).

Regression analysis to predict smoking cessation using the TPB and PBC accuracy

Moderated logistic regression analysis was employed to test the moderation hypothesis of PBC accuracy (Baron & Kenny, 1986) and mean-centred variables were used to minimize problems of multicollinearity (Aiken & West, 1991). Table I shows the results of this analysis.

Table I Predicting behaviour using logistic regression: testing the moderating effect of PBC accuracy.

	B	SE B	Wald test
Step 1			
Intention	.48	.10	25.09***
PBC	.18	.10	1.11ns
Step 2			
Intention	.56	.10	30.11***
PBC	.23	.11	1.67ns
PBC accuracy	.56	.08	55.76***
Past behaviour	.28	.12	5.64**
Step 3			
Intention	.57	.10	30.13***
PBC	.26	.14	1.78ns
PBC accuracy	.58	.11	55.60***
Past behaviour	.29	.11	6.42**
PBC accuracy × PBC	.07	.11	0.51ns
PBC accuracy × past behaviour	-.25	.12	4.67*

Note. $N = 698$. PBC = perceived behavioural control. *** $p < .001$, ** $p < .01$, * $p < .05$

¹ Validation of the PMAC: We conducted a logistic regression; behaviour was regressed on intentions, PMAC and the intention by PMAC interaction. Mean-centered variables were used (Aiken & West, 1991). The procedure is in accordance with Sheeran et al. (2003). Results showed that intention ($B = .51$, Wald = 20.22, $p < .001$) and PMAC ($B = .81$, Wald = 56.93, $p < .001$) gave independent contributions to the explained variance in behaviour. The interaction term ($B = .23$, Wald = 3.93, $p < .05$) gave a significant contribution beyond the effect of intention and PMAC. Thus, these results supported the validity of the PMAC as an index of actual control. Furthermore, we compared PMAC scores for those with positive intentions who quit smoking ($N = 177$) with participants with positive intentions who did not quit ($N = 126$). The scores did not differ significantly between the groups ($M_s = 4.15$ and 3.98 , $SD_s = 1.52$ and 1.74 , respectively), $t(301) = 0.90$, ns). Thus, PMAC reflects actual control, and not attributions made by participants for discrepancies between their intentions and behaviour.

The final step in Table V shows that intentions ($\beta = .57, p < .001$), PBC accuracy ($\beta = .58, p < .001$) and past behaviour ($\beta = .29, p < .01$) were significant predictors. PBC was not significantly related to behaviour. The PBC accuracy by PBC interaction was not significant, but the PBC accuracy by past behaviour interaction was ($\beta = -.25, p < .05$). The final equation correctly classified 78.2% of the respondents.

Results from t tests comparing inclined actors and inclined abstainers, and disinclined actors and disinclined abstainers

Table II Mean Scores of the Measured Variables for Inclined Actors, Inclined Abstainers, Disinclined Actors and Disinclined Abstainers

	Inclined actors (N = 100)	Inclined abstainers (N = 208)	Disinclined actors (N = 52)	Disinclined abstainers (N = 265)
PMAC	4.14	3.98	4.23	3.93
PBC accuracy	0.22	-0.83***	0.41	-0.38***

Note. N = 625. PMAC = proxy measure of actual control. Differences between scores of inclined actors and inclined abstainers, and between disinclined actors and disinclined abstainers were tested with t tests (two-tailed). *** $p < .001$, ** $p < .01$, * $p < .05$.

