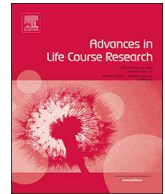




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Mental health problems in adolescence, first births, and union formation: Evidence from the Young HUNT Study



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ABSTRACT

While a large literature documents how mental health problems in adolescence have long-term consequences for adult socioeconomic outcomes, less is known about the relation with family-formation behavior. In this paper, we use data from a population based Norwegian health survey (the Young-HUNT study) linked to administrative registry data (N = 8,113) to examine the long-term consequences of symptoms of internalizing and externalizing problems, the two most common forms of mental health problems, on family-formation outcomes: the likelihood of a first birth, the union status of a first birth, and entering first marriage. For men, externalizing problems are associated with earlier parenthood, especially becoming a father without having a coresidential relationship with the child's mother. Internalizing problems, on the other hand, are associated with lower first-birth rates and the association grows progressively stronger with age. We also find that the associations are more pronounced among men with low childhood socioeconomic status. In contrast, women's family-formation appears for the most part unrelated to their mental health.

1. Introduction

The adolescent years, defined by WHO as the period between ages 10–19, are a stage of life characterized by substantial changes in behavior, maturation, and social relationships (Steinberg, 2014). It is also a period for romantic and sexual development, which lays the foundation for later partnership and family formation in adult life (Suleiman, Galván, Harden, & Dahl, 2016). However, this is also a peak time for the onset of most mental health problems (Lee et al., 2014). Today, it is estimated that about one in five children and adolescents have mental disorders or sub-clinical symptoms of disorders in wealthy Western countries (Merikangas et al., 2010). A concern has been raised about a possible increase in adolescents reporting mental health problems (Bor, Dean, Najman, & Hayatbakhsh, 2014; Collishaw, 2015). Moreover, mental health problems that debut in adolescence often sustain into adulthood (Copeland, Wolke, Shanahan, & Costello, 2015; Kessler et al., 2005).

A body of research has found that health in child and adolescence play a role for later socio-economic disparities in adulthood (Case, Fertig, & Paxson, 2005; Case & Paxson, 2010). Recent empirical evidence shows that mental health problems in adolescence reduce educational attainment and economic opportunities in early adulthood (Currie & Stabile, 2007; Fletcher, 2013; Veldman, Reijneveld, Ortiz,

Verhulst, & Bültmann, 2015). However, so far, there has been limited research on how mental health affects other outcomes, such as family formation behavior (for an exception, see Jokela, 2014). A successful transition to adulthood also involves becoming a parent and forming lasting co-residential relationships, and both marriage and fertility have been linked to lifetime health and wellbeing (Grundy & Kravdal, 2010; Rendall, Weden, Favreault, & Waldron, 2011; Stack & Eshleman, 1998). In this context, more knowledge addressing whether and, if so, how adolescent mental health problems affect family formation in early adulthood is much needed.

Over recent decades, there have been secular changes in family formation behavior: on average men and women marry and become parents later, and more individuals are cohabiting (Billari & Liefbroer, 2010; Sobotka & Toulemon, 2008). Divorce rates have increased, and re-partnering has also become increasingly common (Dommermuth & Wiik, 2014; Eickmeyer & Manning, 2018). These changes have led to a weakening of the social constraints and normative expectations related to the process of family formations, leaving questions about the importance of individual traits, such as health or personality characteristics, for family behavior (Jokela, Alvergne, Pollet, & Lummaa, 2011; Tavares, 2016).

In this study, we examine the association between mental health problems in adolescence and family-formation in early adulthood. By

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using large-scale, high-coverage survey data matched with individual-level administrative register information, we prospectively study the consequences of mental health problems in adolescence for the early adult life course. The results are thus not affected by the problem of reverse causality or potentially severe recall bias. In addition, we include important child and parental background characteristics to minimize any confounding from factors, which might be linked, with health and later family-related outcomes. We consider the timing and union context of first birth, as well as the transition to a first marriage, and distinguish between types of mental health problem.

2. Theoretical background

The social acceptance for childbearing has historically been closely related to marriage. This link has weakened over the past 50 years as both childbearing and marriage have become increasingly detached from normative pressures and biological constraints throughout the developed world (Hayford, Guzzo, & Smock, 2014; Lesthaeghe, 2014). The trend towards uncoupling marriage and childbearing has resulted in more births occurring outside marriage and a corresponding increase in cohabitation rates (England, Wu, & Shafer, 2013; Wiik, 2009). At the same time, there has been a general postponement of the age at which it is socially and personally desirable to have children and form formal relationships. With longer dating periods preceding marital decisions and a higher number of partners before eventually marrying (Dommermuth & Wiik, 2014) individuals have more time for romantic exploration and to learn about the qualities and characteristics of their partners (Arnett, 1999).

In response to the behavioral and normative changes in family-formation, some scholars have asked if fertility decisions are becoming more dependent on individual preferences and psychological dispositions (Jokela et al., 2011; Tavares, 2016). A growing body of knowledge shows the importance of personality and related concepts such as subjective wellbeing for fertility and marriage outcomes (Balbo, Billari, & Mills, 2013; Berg, Rotkirch, Väisänen, & Jokela, 2013) and one study found that personality traits are becoming more important for fertility among younger cohorts (Skirbekk & Blekesaune, 2014). A potentially increased salience of psychological characteristics could suggest a more significant role for mental health problems among adolescents in family-formation processes.

The most common mental health problems experienced by adolescents are usually distinguished in two different categories: internalizing and externalizing problems (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003). Internalizing problems consist of symptoms directed inwards, such as anxiety and depression, related to the individuals' internal psychological environment. By contrast, externalizing problems are characterized by hyperactivity, disruptiveness, and aggression; behaviors that are more directed towards the external environment (Angold, Costello, & Erkanli, 1999). Importantly, mental health problems emerging in adolescence are often recurrent and continue into adulthood (Copeland, Shanahan, Costello, & Angold, 2009; Kessler et al., 2005).

There are large gender differences in mental health problems as women tend to report more symptoms of internalizing problems, while mental health problems on the externalizing spectrum are much more common among men (Angold et al., 1999).

Given the different manifestations of internalizing and externalizing problems, we might expect these problems to affect parenthood and marriage patterns in different ways. Externalizing problems have been associated with risky behaviors, such as alcohol consumption and more frequent sexual activity, which may lead to early parenthood (Dupere, Lacourse, Willms, Leventhal, & Tremblay, 2008; Jaffee, 2002; Poulin, 2011). Externalizing problems might also indicate lower self-control (Harris, Duncan, & Boisjoly, 2002) that could lead to unwanted pregnancies or premature decision-making about entering (and leaving)

unions. By contrast, internalizing problems are linked to social isolation and fewer friendships (Graber 2009) which may hinder romantic exploration and consequently delay fertility and family transitions. However, several studies have found that adolescents with internalizing problems also engage in more risky sexual behaviour, such as early sexual debut, multiple sexual partners and non-use of contraception (Kosunen, Kaltiala-Heino, Rimpelä, & Laippala, 2003; Shrier, Harris, Sternberg, & Beardslee, 2001; Valle, Torgersen, Røysamb, Klepp, & Thelle, 2005), which is likely to increase the risk of early and non-marital childbearing. However, much of the literature on internalizing problems has focused on women, and consequently, we know less about these associations among men.

Since internalizing problems are relatively common among women, and externalizing problems common among men, these behaviours may not be a good "signal" to distinguish whether men and women with these behaviours are desirable partners or not. Instead, one might hypothesize that individuals who defy conceptions of men and women's normative behaviour, such as women with externalizing problems, or men with internalizing problems, will have more difficulties in forming relationships. For example, an anxious man may be seen as a less desirable partner due to the ideal of men as emotionally strong partners. Previous research has found that certain traits associated with internalizing problems, such as shyness, were associated with delayed rates of marriage and parenthood, especially among men (Caspi, Elder, & Bem, 1988).

The timing of parenthood also matters for women and men's later life trajectories. For example, early and non-marital parenthood is associated with being an absent father (Clarke, Cooksey, & Verropoulou, 1998) whereas single motherhood has been linked to lower levels of education, more deprived economic circumstances, and later health problems for women (Boden et al., 2008; Hobcraft & Kiernan, 2001). However, we might also expect that the consequences of mental health problems for family formation change over the life course. For example, if mental health problems are associated with risky sexual behavior, this might increase first-birth rates outside a formal union, especially in early adulthood. These associations may become weaker at older ages if mental health problems are seen as incompatible with responsible parenting characteristics (Jokela, 2014).

Family formation patterns are also heavily influenced by family backgrounds, such as socioeconomic status and family structure (Schoen, Landale, Daniels, & Cheng, 2009). Existing research shows that individuals from high socio-economic family backgrounds are more likely to form more stable relationships leading to "diverging destinies" (McLanahan, 2004). Childhood origins are also related to when men and women enter parenthood were those from disadvantaged backgrounds tend to enter parenthood earlier and to engage in unstable and complex family patterns themselves (McLanahan, 2004; Reneflot, 2009). Moreover, evidence from epidemiological studies shows that children and adolescents with low socioeconomic status tend to have worse mental health (cf., Reiss, 2013). Given these stylized patterns, it is important to examine whether the influence of mental health problems on family-formation behavior is more pronounced among individuals with low socioeconomic childhood origins.

However, the association between mental health problems and family-formation outcomes may also operate more indirectly through pathways related to human capital formation. In particular, externalizing problems have in several studies been linked with lower educational levels and also lower employment probabilities (Evensen, Lyngstad, Melkevik, Reneflot, & Mykletun, 2017; Veldman et al., 2015) and educational attainment is an important predictor of demographic behaviors such as first birth timing (Balbo et al., 2013). Thus, exploring the extent to which adjusting for individual's own education mediates any of the associations between mental health problems and family-formation behaviour might shed light on possible mechanisms.

3. Previous research

3.1. Fertility

Numerous studies have found that both socioeconomic and contextual factors are important for fertility intentions and family formation behaviors (Balbo et al., 2013; Blossfeld & Huinink, 1991; Kravdal, 2002). In economic models, fertility is often understood within a rational decision framework, where the costs and benefits of having children are weighted (Becker, 1981). However, having children may also be a result of more subtle and less predictable factors. For example, a large part of pregnancies and first births in western countries are unplanned and unintended (Finer & Zolna, 2014; Sedgh, Singh, & Hussain, 2014) despite the fact that contraceptives are highly available.

Determinants of teenage pregnancy have been studied extensively, as early motherhood has been linked with later social marginalization (Hobcraft & Kiernan, 2001) and several studies have shown that early mental health problems are associated with early parenthood (Boden, Fergusson, & John Horwood, 2008; Moffitt & the, E. R. S. T., 2002). However, a focus on early childbearing provides limited knowledge on how adolescent mental health is related to fertility and family-formation behaviors for the overall population, as teenage parenthood is quite rare in Norway, as well as in most European countries (Sedgh, Finer, Bankole, Eilers, & Singh, 2015).

Another body of research highlights the role of personality (and related concepts) for fertility (Jokela et al., 2011; Le Moglie, Mencarini, & Rapallini, 2015). For example, several studies have found that emotionality and sociability, typically antonyms of anxiousness, are related to a higher probability of having children for both men and women (Jokela et al., 2011). Emotional stability is also associated with planned births (Berg et al., 2013). Similarly, low levels of efficacy, a concept related to self-regulation and assertiveness have been linked to inconsistent contraceptive use among women (England, Caudillo, Littlejohn, Bass, & Reed, 2016). Furthermore, personality characteristics seem to affect men's and women's fertility differently. High levels of conscientiousness decreases female fertility and whereas a high degree of openness decreases male fertility (Skirbekk & Blekesaune, 2014). High subjective wellbeing has also been linked to (higher) fertility in several studies (Le Moglie et al., 2015; Perelli-Harris et al., 2012) and there is also evidence that subjective wellbeing influences whether to have more children (Billari, 2009; Margolis & Myrskylä, 2015). Together, these studies offer indications on the role health selection plays for family formation behavior.

While psychological characteristics seem to matter for fertility, the long-term consequences of adolescent mental health for later marriage and family formation are less studied. One exception is Jokela (2014) who used data from the 1958 British birth cohort to study the consequences of childhood internalizing and externalizing problems for planned and unplanned pregnancies. This study found that externalizing problems in childhood were associated with higher rates of unplanned pregnancies in early adulthood for both men and women. Internalizing problems, on the other hand, were associated with lower planned pregnancy rates among men, but with earlier transitions to parenthood among women.

3.2. Marriage

Numerous studies have found that married individuals tend to be healthier than non-married (Stack & Eshleman, 1998; Waite, 1995). Some of the health advantages among the married has been attributed to the social and economic benefits marriage may provide, however, there is also evidence of selection mechanisms, where health and socioeconomic positions are important factors (Lillard & Panis, 1996). For example, research has found that individuals often state preferences for high socioeconomic status when asked about potential partner characteristics in surveys (Asendorpf, Penke, & Back, 2011; Fisman, Iyengar,

Kamenica, & Simonson, 2006). Height and body mass index, indicators of overall health and fitness, have been linked with higher marriage rates (Fu & Goldman, 1996). Previous research has found that high psychological wellbeing and behavioral tendencies related to personalities, such as openness and conscientiousness, are positively related to marriage (Mastekaasa, 1992; Stutzer & Frey, 2006).

Although many of the same psychological characteristics that play a role for fertility are likely to play a role for marriage, there are some notable differences. For example, whereas externalizing problems have been associated with early parenthood (Jaffee, 2002), previous research shows that health behaviors such as alcohol use and drug use are associated with a lower likelihood of marriage (Fu & Goldman, 1996; Staff, Greene, Maggs, & Schoon, 2014). Smoking, an indicator sometimes included in scales of externalizing problems, also seems to be associated with lower marriage probabilities, especially among women (Fu & Goldman, 1996; Joy Jang, Patrick, & Schuler, 2017). Binge drinking and marijuana use have been found to delay marriage and cohabiting (Duncan, Wilkerson, & England, 2006).

A few studies have looked more directly at how child and adolescent mental health are related to marriage in adulthood (Forthofer, Kessler, Story, & Gotlib, 1996; Goodman, Joyce, & Smith, 2011; Smith & Smith, 2010). Two studies from the United States using retrospective questions about the onset of mental health problems have found that suffering from depression, alcohol misuse or other psychological problems in child and adolescence were associated with lower marriage and cohabiting rates in mid-adulthood (Forthofer et al., 1996; Smith & Smith, 2010). A general criticism of the abovementioned studies is that they rely on retrospective assessments of mental health in childhood, which raises a concern about reverse causality.

In sum, the literature indicates that child and adolescent mental health problems are important predictors of demographic outcomes, but most studies lack a focus on childbearing beyond the teenage years and whether parenthood is entered into outside a union or marriage.

In this study, we examine the association between mental health in adolescence and family behavior in early adulthood. We examine both the context of first birth and the timing, and we differentiate between various mental health problems. Further, we examine if the consequences of mental health problems are more pronounced among those with low parental background possibly reinforcing the already existing socioeconomic difference in family formation behavior. Lastly, we examine if the association between mental health and family formation mainly operates through individuals own educational level. All associations are estimated separately for men and women.

4. Data and methods

4.1. Study population

The empirical context of this study is Norway, more specifically the Nord-Trøndelag County, which is situated in the middle of Norway. It has a rather stable population size of about 130,000 inhabitants, and the county is mostly rural, with a lack of large cities, but is considered representative of Norway as a whole regarding the economy, income sources, age distribution, morbidity and mortality (Holmen et al., 2013). The demographic trends in Norway are similar to other countries, with decreasing marriage rates, increases in cohabitations and postponement of age at first birth (Dommermuth & Wiik, 2014; Rendall et al., 2010). However, there are socioeconomic differentials in demographic patterns, and higher-educated individuals tend to form and sustain more lasting relationships (e.g., marriage) and childlessness has become more prevalent among low educated (Jalovaara et al., 2017; Lyngstad, 2004). Numbers from 2017 from Statistics Norway show that the average age of first birth for women and men are 29.8 and 32.2, respectively, but there are large regional variations in family demographic patterns. For example, the average age of first birth in the county of Nord-Trøndelag is lower, 27.7 for women and 31. for men

(Statistics Norway, 2019).¹

4.2. Data

The data were drawn from a large population-based health survey, the Young-HUNT study, conducted in 1995-1997. This study is the adolescent part of the Nord-Trøndelag Health Study (the HUNT Study, for details, see <http://www.ntnu.edu/hunt>). A comprehensive questionnaire was completed during class hours by 8949 adolescents, who were 13–19 years old at the screening. Adolescents not in school were invited to the study by post. The participants (or their parents if the child was younger than 16) gave their written consent to participate in the Young-HUNT study. The response rate was 90 % (Holmen et al., 2013).

Data from the survey were further matched with individual-level data obtained from population-wide, longitudinal administrative registers available from Statistics Norway, using unique personal identification numbers. The register provides information about the respondent's fertility and marital and educational histories. Furthermore, from the registers, we also have information about various demographic factors as well as the highest parental educational level. The registers are updated annually until 2013, and thus we can follow all respondents up to age 30.

An advantage of register data is that they allow for an extended follow-up and no attrition. A major drawback of the same register data is that they do not contain information on all cohabiting couples. If a cohabiting couple has a child together, the couple will in our data be identified based on their shared address and as co-parents of the same child.² While we were unable to identify cohabiters without common children, we did take advantage of the possibility of identifying cohabiting couples with common children.³ Thus, we were able to study the union context of their transition into parenthood (i.e., whether or not the individual was in a union – either as a cohabiter or married spouse – at the time of the first birth).

Table 1 provides an overview of descriptive statistics for the variables used in the analysis, for all individuals and then separately by men and women, for our study sample.

4.3. Measures of family-formation behaviors

We examined a set of three separate family formation-related outcomes that mark transitions into new, important life-course stages. Our first outcome is the transition to parenthood (or first birth) regardless of union status (i.e., 0 = no birth at given age, 1 = first birth at given age), and is measured by the date of first birth, as registered in the population register, separately from age 20 and up to the year the respondents are 30 years old. Our second outcome is having the first birth in a co-residential union, which is defined as having a child within a marriage or in cohabitation (i.e., 0 = no birth or birth outside a union at given age, 1 = first birth within a union at given age). Cases scoring 1 on this outcome will necessarily also score 1 on the first outcome, but not *vice versa*. We measured births to cohabiting couples by using address information: whether the mother and father of the new-born child were registered at the same address in the year of the birth and/or in the year after the birth.⁴ Our third outcome is entry into first marriage

Table 1
Descriptive statistics of variables used in analysis.

	All		Men		Women	
	Mean	SD	Mean	SD	Mean	SD
Family-formation outcomes						
First birth by age 30	0.582		0.481		0.683	
First birth w/ a union by age 30	0.516		0.434		0.598	
First married by age 30	0.202		0.150		0.253	
Mental health variables						
Internalizing problems	1.455	0.492	1.342	0.421	1.568	0.532
Attention problems index	1.990	0.564	1.973	0.575	2.008	0.554
Conduct problems index	1.359	0.365	1.413	0.399	1.307	0.319
Mental health variables (z-std.)						
Internalizing problems	-0.003	0.993	-0.232	0.848	0.225	1.072
Attention problems index	-0.008	0.991	-0.039	1.009	0.023	0.972
Conduct problems index	-0.007	0.986	0.137	1.078	-0.150	0.862
First born	0.393		0.395		0.390	
Sibship size	1.835	0.823	1.838	0.828	1.832	0.818
Parental divorce or separation	0.209		0.200		0.218	
Immigrant background	0.010		0.010		0.010	
Age at screening	15.6	1.8	15.6	1.8	15.6	1.8
Birth year	1979.9	1.9	1979.9	1.9	1980.1	1.8
Parental education						
Less than upper secondary	0.408		0.405		0.411	
Upper secondary, vocational	0.180		0.182		0.178	
Upper secondary, academic	0.083		0.085		0.080	
University, short	0.251		0.251		0.251	
University, long	0.077		0.077		0.078	
Missing	0.001		0.001		0.001	
Number of persons	8,292		4,134		4,158	

Note: Standard deviations are not shown for discrete variables, as the full distribution of responses is shown.

regardless of having entered into parenthood or not (i.e., 0 = not married at given age, 1 = married at given age).

Table 1 documents that men's and women's family-formation patterns are somewhat different. By age 30, 68 % of women and 48 % of men have had a child. By age 30, 60 % of women have had a first birth within a union compared to 43 % of men. Marriage rates also differ by gender; 25 % of women and 15 % of men had married by age 30.

4.4. Measures of adolescent internalizing and externalizing problems

The indicators of mental health problems are self-reported by the students. We included three key independent variables, all of which are based on a set of symptom indicators: internalizing problems, attention problems, and conduct problems. To measure internalizing problems, we used a standardized indicator of symptoms of anxiety and depression, a five-item scale originally based on the Hopkins Symptoms Checklist-25 (SCL-25). In the five-item version (SCL-5), the presence or absence of the following five symptoms during the last 14 days was reported: feeling blue, feeling fearful, and feeling hopeless about the future, worrying too much about things and experiencing nervousness or shakiness inside. A four-point scale was used, ranging from 1 ('not bothered') to 4 ('very much bothered'). The five-item scale has been shown to be a reliable measure and correlates highly with the SCL-25 (Tambs & Moum, 1993). We used the mean values of SCL-5 for respondents with valid scores on three or more of the items.

Externalizing problems was calculated using items from a questionnaire module on school adjustments. This module has been used in several studies and is described elsewhere (Størksen, Røysamb, Holmen, & Tambs, 2006). The responses to these questions were

¹ Own calculations based on data from Statistics Norway.

² Admittedly, the lack of data on cohabiting relationships for individuals without common children is a limitation of the current study, as cohabitation is the main form of co-residential union among young Norwegians (Wiik, 2009). Thus, we were unable to study the formation of cohabiting unions among young people without common children.

³ The majority of first births in Norway take place in non-married cohabiting unions (Perelli-Harris et al., 2012).

⁴ This latter adjustment is due to some couples not officially registering until after the birth.

categorized by mental health *behavior* and added together in order to create a sum score. We differentiated between two forms of externalizing problems, attention problems (2 questions) and conduct problems (4 questions). The attention-problems score included the statements: "cannot sit still" and "have difficulties concentrating." The statements that made up the conduct-problems dimension were: "are reprimanded by the teacher", "argue with the teacher", "get into a fight" and "skip school." The statements were measured in a 1 = never to 4 = very often format. When included in models, all three mental health indices were z-standardized (mean = 0, standard deviation = 1).

4.5. Control variables

Our data set includes several relevant child and parental background characteristics, which may affect both individual's mental health status and the outcome variables. We control for birth cohort, age at the survey, number of siblings, being firstborn, highest completed level of education of the mother or father (measured when the child was 16), and family structure (whether parents were divorced or separated at the time of the survey). We also have information on student's school at the screening, which enables adjustment for school fixed effects. These fixed effects will capture stable (unobserved) school characteristics and related neighborhood surroundings.

In some model specifications, we also include individuals' own educational attainment as a possible mediator.⁵ We measure the highest completed level of education at age 30 and separate between (i) less than upper secondary, (ii) completed upper secondary, and (iii) tertiary education.

4.6. Statistical models

The aim of the empirical analyses is to estimate the association between adolescent mental health problems and adult family-formation behavior outcomes, including their timing throughout early adulthood. We primarily focus on having experienced the given family-formation by age 30. The parameter estimates from the linear probability models report marginal effects (probability changes), indicating the percentage point change in the probability of the event for a unit change in the independent variables. In these models, the probability of a given outcome ($y = 1$) is assumed to be a linear function of the set of predictors. For each of the outcomes, we specify these models as

$$Y_{is} = \alpha_s + \beta_1 \text{Internalizing}_i + \beta_2 \text{Attention}_i + \beta_3 \text{Conduct}_i + \delta X_i + \varepsilon_{is} \quad (1)$$

where i and s are indices for individuals and schools, respectively. Y_{is} is the relevant family-formation outcome; α_s is the school fixed effects; X_i is the set of control variables on child and parental characteristics; and ε_{is} is an individual-specific error term. The coefficients of interest, β_1 , β_2 , and β_3 , capture the estimated net association between each specific mental health measure and the relevant family formation outcome while simultaneously controlling for the other mental health measures, observed individual and parental characteristics, and all stable effects of the school at screening and its surrounding neighborhood context.

To assess the association between mental health problems and timing of family-formation behavior, we also estimate Eq. (1) conditional on having experienced the family-formation event in question before a given age. For each outcome, we constructed a set of dummy variables for each age a , which was scored 1 if the event took place

⁵ Educational attainment is endogenous to the family-formation process (Kravdal & Rindfuss, 2008) and, thus, likely correlated with unobserved factors that also correlate with mental health and family-formation behavior. Thus, the inclusion of educational attainment in our models would mean that we are potentially "over-controlling" part of the association between mental health problems and family formation. Nonetheless, it is interesting to examine the role of the adolescents' educational attainment as a possible mediator in our analysis.

within the year the respondent reached age a . The results let us estimate the probability that the three events in question had taken place at a given age cut-off. By comparing estimates for our measures of mental health problems from models using different age cut-offs, we can assess when in the early adult life course any differences in fertility and family formation by mental health appear. Hence, we can also examine whether mental health problems lead to postponements or recuperations in family-formation outcomes over the age span considered. Finally, we also explore heterogeneity in the estimated relationships by parental education.

5. Results

Table 2 presents our estimates for the associations between adolescent mental health problems and experiencing a first birth by age 30. All models are presented separately for men and women. In model 1, we start with the baseline associations where we only include controls for birth year and age at screening to account for the fact that the individuals answered the questionnaires at different ages. In model 2, we control for child and parental background factors to account for potential confounding. In model 3, we include controls for the individuals' own completed education to examine to what extent the association between adolescent mental health, and first births are mediated by educational attainment.

For men, model 1 shows that internalizing problems reduce the probability of having children. A one standard-deviation increase in internalizing problems reduces the probability of having children by age 30 by 2.4 percentage points ($b = 0.024$). However, as we add controls for background characteristics, in model 2, these associations are no longer significant. For attention problems, we find a positive relationship with the probability of experiencing a first birth. A one standard-deviation increase in attention problems raises the probability of becoming a father by age 30 by 2.5 percentage points ($b = 0.025$). The coefficient ($b = 0.020$) is also significant after including background controls (model 2), and is only slightly reduced after inclusion of controls ($b = 0.018$) for the respondent's own education (model 3). For conduct problems, we also find a positive association with first births. A one standard-deviation increase in conduct problems increases the probability of becoming a father by age 30 by 2.5 percentage points, and the size of the coefficient remains similar across the different model specifications. In contrast, we do not find any significant associations between mental health problems and the probability of experiencing a first birth by age 30 for women, and the coefficients generally linger around zero.

In Table 3, we examine the association between mental health in adolescence and first birth within a union. For men, we find that internalizing problems reduces the chances of having children within a union. A one standard-deviation increase in internalizing problems reduces the probability of having children by age 30 within a union by 2.9 percentage points. In model 2, the association is reduced to 1.9 percentage points after controlling for background characteristics, but remains significant. Controlling for education has no impact on the estimates (model 3). Considering attention problems, the relationship is, again, positive. A one standard deviation increase in attention problems increases the probability of becoming a father by age 30 by 2.5 percentage points and the association is significant after including background controls (model 2) and own education (model 3). For conduct problems, we do not find any significant association. The estimated coefficients are smaller (around 1.2 percentage points) compared to the estimates in Table 2 (2.5 percentage points), where we examined first birth irrespective of union context. For women, we do not find any significant associations.

Table 4 presents the estimated relationships between adolescent mental health and marriage by age 30. For men, we do not find any associations between mental health and marriage; the coefficients are generally small and do not reach statistical significance at conventional

Table 2
The association between mental health problems and first birth before age 30.

	Men			Women		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Internalizing problems	-0.024* (0.010)	-0.016 + (0.010)	-0.014 (0.010)	0.006 (0.007)	0.006 (0.007)	0.006 (0.007)
Attention problems	0.025** (0.009)	0.020* (0.009)	0.018* (0.009)	0.000 (0.009)	-0.002 (0.009)	-0.005 (0.009)
Conduct problems	0.025** (0.008)	0.023** (0.008)	0.022** (0.008)	0.012 (0.009)	0.013 (0.009)	0.011 (0.009)
First-born child by mother		0.015 (0.017)	0.018 (0.017)		0.049** (0.015)	0.051*** (0.015)
Number of siblings (ref. = no siblings)						
One sibling		0.048 (0.047)	0.049 (0.046)		0.096* (0.043)	0.095* (0.043)
Two siblings		0.105* (0.047)	0.104* (0.047)		0.157*** (0.043)	0.159*** (0.043)
Three or more siblings		0.085 + (0.048)	0.085 + (0.048)		0.184*** (0.044)	0.183*** (0.044)
Parental divorce		0.017 (0.020)	0.012 (0.020)		0.018 (0.018)	0.010 (0.018)
Immigrant background		-0.205* (0.082)	-0.202* (0.083)		-0.120 (0.075)	-0.130 + (0.074)
Parental education (ref. = less than upper secondary)						
Vocational UP		-0.052* (0.022)	-0.047* (0.022)		0.030 (0.020)	0.036 + (0.020)
Academic UP		-0.072* (0.029)	-0.065* (0.029)		-0.065* (0.028)	-0.057* (0.028)
University, short		-0.075*** (0.020)	-0.059** (0.020)		-0.113*** (0.018)	-0.093*** (0.019)
University, long		-0.154*** (0.031)	-0.117*** (0.032)		-0.220*** (0.028)	-0.195*** (0.029)
Missing		-0.011 (0.239)	0.099 (0.265)		-0.036 (0.213)	0.103 (0.235)
Respondent education level at age 30(ref. = Below upper secondary)						
Full secondary			0.067** (0.024)			0.057* (0.027)
Tertiary			-0.036 (0.026)			-0.039 (0.026)
School fixed effects		Yes	Yes		Yes	Yes
No. of individuals	4134	4136	4138	4158	4160	4162
R2	0.014	0.050	0.057	0.006	0.068	0.075

Notes: All models control for birth year and age at screening. + p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001 (two-tailed tests).

levels. For women, in contrast, we find that attention problems reduce the probability of being married by 2 percentage points, and the coefficients are rather stable across the three model specifications. Thus, background control variables and own educational level have limited impact on the estimates. For internalizing and conduct problems, we do not find any significant associations.

To sum up, these results show that adolescent externalizing problems among men increase the probability of becoming a father by age 30. In particular, conduct problems are related to an increased probability of becoming a father outside a union context. Internalizing problems, however, seem to decrease the probability of having children by age 30. For women, adolescent mental health problems seem to matter less for family formation, although we found that attention problems were related to a slightly lowered probability of being married by age 30. Results for models using dichotomous measures of high levels of mental health problems are found in Appendix Table A1⁶. They show a similar overall pattern although some coefficients do not reach statistical significance at conventional levels.

⁶ For our measure of internalizing problems, SCL-5, it is common to use the value of > 2.0 to indicate high level of psychological distress. However, for the two externalizing measures, there is not a clear defined cut off. We chose to dichotomize approximately the 10 percent highest scoring individuals to indicate more severe cases of attention and conduct problems.

5.1. Adolescent mental health problems and the timing of family formation

Next, we examine age patterns in family-formation behaviors by mental health problems. For each outcome, we estimated a set of linear probability models predicting whether the outcome event in question had taken place by a given age starting at age 20 and up to age 30 (the maximum age that all cohorts are observed in). In these models, we include background control variables and school fixed effects (cf. model 2 in the previous tables). We show the estimated coefficients by age for each mental health problem in a set of separate panels for each family-formation outcome. As above, all models were estimated separately for men and women.

In Fig. 1, we present the estimated coefficients for first births, with 95 % confidence intervals. The line indicates the deviation in percentage points of having had a first birth for those with symptoms one standard deviation above the mean. For men, there are two striking findings. Internalizing problems are less important in the early twenties, but reduce the probability of having children from age 25 onwards compared to those with lower levels of internalizing problems. By contrast, for externalizing problems, we find a positive association for first births at every age, especially from age 25 and up. Although both conduct problems and attention problems are positively related to first births, conduct problems seem to have a steeper increase in the early twenties compared to attention problems. Thus, more externalizing problems are associated with an early transition to parenthood, especially before age 30, compared to those with lower levels. For women,

Table 3
The association between mental health problems and first birth in a union before age 30.

	Men			Women		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Internalizing problems	-0.029** (0.010)	-0.019* (0.010)	-0.017 + (0.010)	-0.003 (0.008)	-0.001 (0.008)	0.000 (0.008)
Attention problems	0.026** (0.009)	0.024** (0.009)	0.022* (0.009)	-0.013 (0.009)	-0.014 (0.009)	-0.015 + (0.009)
Conduct problems	0.012 (0.008)	0.012 (0.008)	0.012 (0.008)	-0.006 (0.010)	-0.002 (0.010)	-0.002 (0.010)
First-born child by mother		0.019 (0.016)	0.021 (0.016)		0.034* (0.016)	0.034* (0.016)
Number of siblings (ref. = no siblings)						
One sibling		0.055 (0.046)	0.057 (0.046)		0.088 + (0.046)	0.085 + (0.046)
Two siblings		0.104* (0.046)	0.106* (0.046)		0.129** (0.046)	0.128** (0.046)
Three or more siblings		0.061 (0.048)	0.064 (0.048)		0.138** (0.047)	0.136** (0.047)
Parental divorce		-0.037 + (0.020)	-0.037 + (0.020)		-0.049** (0.019)	-0.050** (0.019)
Immigrant background		-0.161* (0.082)	-0.158 + (0.082)		-0.132 + (0.079)	-0.132 + (0.079)
Parental education (ref. = less than upper secondary)						
Vocational UP		-0.040 + (0.022)	-0.037 + (0.022)		0.031 (0.022)	0.033 (0.022)
Academic UP		-0.065* (0.029)	-0.061* (0.029)		-0.062* (0.029)	-0.059* (0.029)
University, short		-0.061** (0.020)	-0.051* (0.020)		-0.097*** (0.019)	-0.090*** (0.020)
University, long		-0.155*** (0.031)	-0.127*** (0.032)		-0.176*** (0.030)	-0.167*** (0.030)
Missing		-0.201 (0.238)	-0.140 (0.264)		-0.133 (0.227)	-0.030 (0.251)
Respondent education level at age 30(ref. = Below upper secondary)						
Full secondary			0.092*** (0.024)			0.072* (0.029)
Tertiary			0.003 (0.026)			0.025 (0.028)
School fixed effects		Yes	Yes		Yes	Yes
No. of individuals	4134	4134	4127	4158	4158	4154
R2	0.012	0.047	0.053	0.006	0.053	0.054

Notes: All models control for birth year and age at screening. + p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001 (two-tailed tests).

as before, there are very few significant associations.

Fig. 2 shows the estimated associations between mental health and first births within a co-residential union. The results for men largely resemble those we found for first births, where externalizing problems increase the probability of experiencing a first birth across the whole age period studied. However, the size of the coefficients is smaller for conduct problems compared to the results where we studied first birth irrespective of union context. For women, there is no clear trend across these age groups, and the estimated coefficients are not statistically significant.

In Fig. 3, we present the estimated associations between mental health and the timing of first marriage. For men, we do not find any significant association between mental health problems and the probability of entering into a first marriage. For women, we find few significant effects for internalizing problems and conduct problems. However, attention problems seem to decrease the probability of marriage with increasing age. It should be noted, however, that these associations are generally smaller than those we found previously, for men's first-birth rates.

Overall, this implies that among men externalizing problems have a positive association with fatherhood by age 30, and particularly so outside a formal union. Internalizing problems seem to reduce family formation. For women, we find few significant associations between mental health and family formation. However, one exception is for attention problems, which seem to reduce women's probability of being married by age 30 compared to those with lower levels.

5.2. Adolescent mental health problems, family formation, and variation by socioeconomic origin

We examined variation in the relationship between mental health problems and family-formation behaviour in early adulthood by childhood socioeconomic status. Table 5 presents results from models estimated separately for those with low and high parental education (i.e., both parents with less than upper secondary education versus those with at least one parent with completed upper secondary education or higher). For these models, we again focus on having experienced the relevant family-formation event by age 30. For men, the associations between adolescent mental health problems and first births are stronger among those with low childhood socioeconomic status compared to those of higher social origin. For internalizing problems, a one standard-deviation increase reduces the probability of being a father by 2.2 percentage points among those with low parental education, although the coefficient is not significant, compared to a non-significant estimate of -0.6 percentage points for those with high parental education. For attention problems, the positive association with first birth also seems to be concentrated among those with low parental education and we find that a one standard-deviation increase in attention problems is related to a 3.7 percentage-point increase in the probability of being a father by age 30. For men's conduct problems, however, there is less variation by the level of parental education. We find that a one standard-deviation increase in conduct problems is related to a 2.8 percentage-point increase in the probability of experiencing a first birth

Table 4
The association between mental health problems first married before age 30.

	Men			Women		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Internalizing problems	-0.002 (0.007)	-0.003 (0.007)	-0.002 (0.007)	0.006 (0.007)	0.007 (0.007)	0.007 (0.007)
Attention problems	0.002 (0.006)	0.004 (0.007)	0.005 (0.007)	-0.021** (0.008)	-0.019* (0.008)	-0.020* (0.008)
Conduct problems	-0.007 (0.006)	-0.008 (0.006)	-0.007 (0.006)	-0.010 (0.009)	-0.012 (0.009)	-0.012 (0.009)
First-born child by mother		0.001 (0.012)	-0.000 (0.012)		0.014 (0.015)	0.015 (0.015)
Number of siblings (ref. = no siblings)						
One sibling		0.008 (0.034)	0.010 (0.034)		0.058 (0.041)	0.059 (0.041)
Two siblings		0.017 (0.034)	0.019 (0.034)		0.069+ (0.041)	0.070+ (0.041)
Three or more siblings		0.053 (0.035)	0.057+ (0.035)		0.113** (0.042)	0.113** (0.042)
Parental divorce		-0.034* (0.014)	-0.028+ (0.015)		-0.036* (0.017)	-0.039* (0.017)
Immigrant background		-0.007 (0.059)	-0.001 (0.060)		0.160* (0.071)	0.157* (0.071)
Parental education (ref. = less than upper secondary)						
Vocational UP		0.018 (0.016)	0.016 (0.016)		0.033+ (0.019)	0.035+ (0.019)
Academic UP		-0.004 (0.021)	-0.006 (0.021)		0.015 (0.026)	0.018 (0.026)
University, short		0.019 (0.015)	0.014 (0.015)		0.015 (0.017)	0.022 (0.018)
University, long		0.055* (0.023)	0.045+ (0.023)		0.049+ (0.027)	0.058* (0.027)
Missing		-0.012 (0.173)	0.060 (0.192)		0.034 (0.203)	0.145 (0.225)
Respondent education level at age 30(ref. = Below upper secondary)						
Full secondary			0.032+ (0.017)			0.018 (0.026)
Tertiary			0.042* (0.019)			-0.017 (0.025)
School fixed effects		Yes	Yes		Yes	Yes
No. of individuals	4134	4134	4127	4158	4158	4154
R2	0.011	0.032	0.032	0.032	0.030	0.032

Notes: All models control for birth year and age at screening. + p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001 (two-tailed tests).

by age 30 among those with low level of parental education compared to 2.3 percentage-point increase among those with high parental education. For marriage, we do not find any associations (or related variation by parental education) for men. Turning to women, we do not find that the association between mental health and first birth or marriage differ among those with low or high parental education.

6. Discussion and conclusion

This study addresses the relationship between adolescent mental health problems and family-formation behavior using a population-based health survey of adolescents merged with administrative register data containing information on family-formation outcomes. Previous research has found that mental health problems, especially externalizing problems, in childhood and adolescence have important consequences for individuals' educational careers (Currie & Stabile, 2007; McLeod, Uemura, & Rohrman, 2012) and economic status (Veldman et al., 2015; Evensen et al., 2017). Until now, our understanding of the role mental health problems may play as antecedents of fertility and family processes in early adulthood has been relatively limited.

We find that mental health problems are much more important for men's early family-formation behavior than they are for women's behavior. Men's externalizing problems are associated with an earlier transition to parenthood, and particularly to parenthood without having a co-residential relationship with the co-parent. The association attenuates somewhat with increasing age. Men with internalizing

problems, on the other hand, have lower first-birth rates, and this association becomes progressively stronger with age. For women, we do not find any measurable differences for these outcomes.

The results between internalizing problems and decreased rates of first births among men is of particular interest. Many countries report increasing rates of childlessness, and there is much scholarly and policy interest in knowing more about why so many men end up without children (Jalovaara et al., 2017). Our results point to internalizing problems as one potential factor in explaining males' childlessness. Why internalizing problems seem to be more consequential for men compared to women is puzzling. It may be due to the inherently different ways internalizing problems manifest among men and women, if, for example, anxiety and depression are more chronic or disabling among men. However, previous research has found few gender differences in persistence and recurrence of internalizing disorders (Kessler, 2003). We speculate that our results indicate a social pathway where traditional roles on how to be a man may still be prevalent, resulting in women preferring emotionally strong men. For example, surveys indicate that among contemporary boys, there is a pressure to hide feelings of sadness (Plan International, 2018), and men also report that society values "emotional strength" (Pew Research Center, 2017). Such stereotypes may perpetuate gender differences in the selection into family formation by mental health status.

Relatedly, this might reflect gender differences in partner market (or "marriage market") behavior and search. The partner market is likely a social arena where the dimensions of mental health we study are salient. Consider for example the results for men. If we assume that men

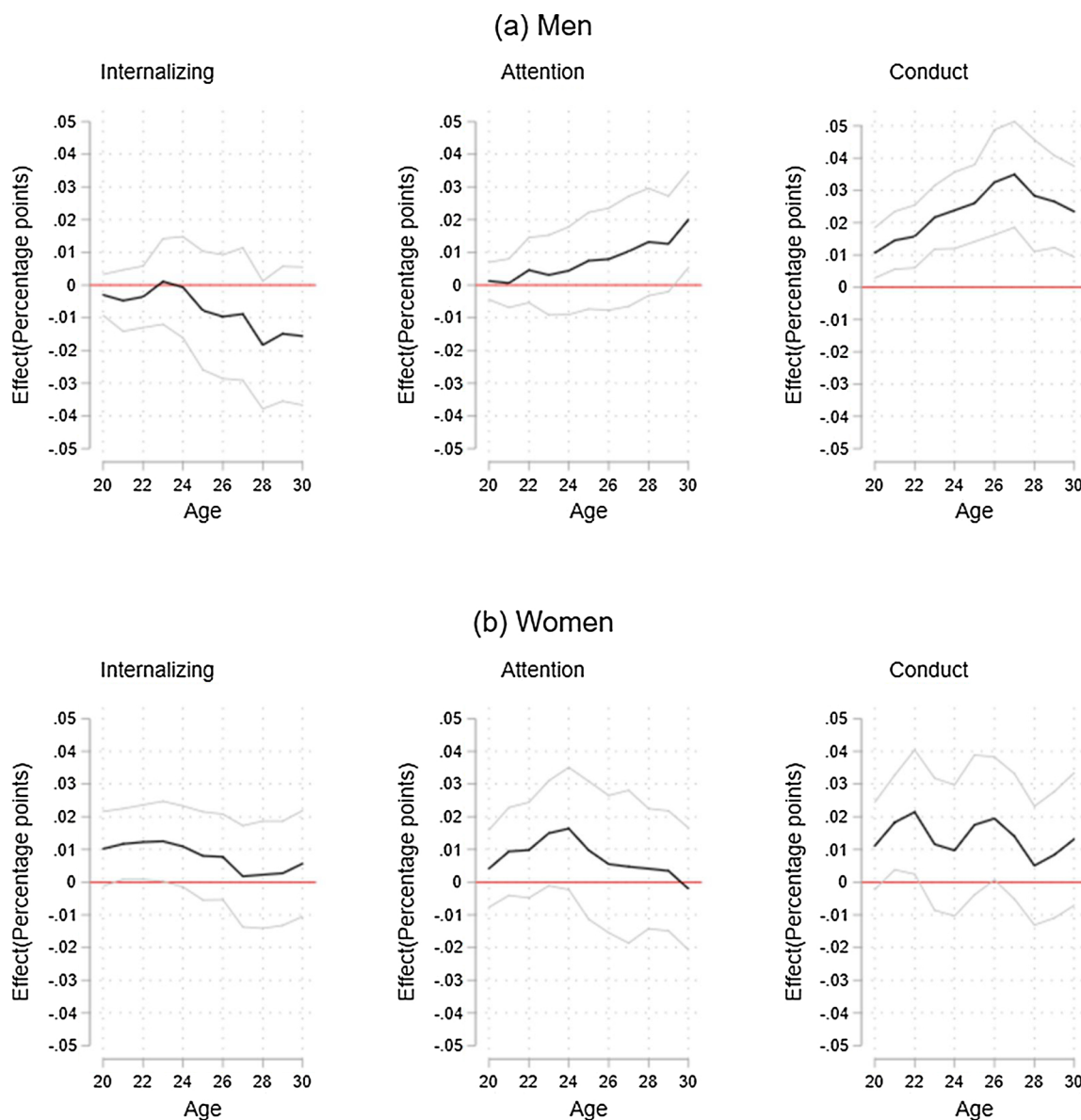


Fig. 1. The association between mental health in adolescence and timing of first birth. Linear probability models.
Notes: Each panel plots results from linear probability models estimating the effect of the relevant mental health problem indicator on having experienced first birth separately for each year from age 20 through 30. All models control for all mental health problem indicators simultaneously, parental education, parental divorce, whether the child was the first born to his or her mother, number of siblings, immigrant background, and school fixed effects. The grey lines refer to 95 % confidence intervals.

are the active part in partner search and couple formation processes, one would expect internalizing problems to be associated with lower rates of family formation (which is weakly indicated by our results). The higher likelihood of a first birth without any co-residential relationship suggests that certain men may engage behaviors that lead to more births, but do not translate to more union formation. An interpretation is that in certain context such as Norway, where sexual norms are fairly liberal, men's externalizing problems may be a hindrance to achieving a steady relationship but not to sexual contact.

Further, we find that adolescent externalizing problems, primarily conduct problems are associated with an early transition to parenthood and especially for first-birth rates outside a co-residential relationship. The results for externalizing problems correspond with previous research which has found that externalizing scores are associated with risky sexual behavior (Zimmer-Gembeck & Helfand, 2008). In light of this, the association between conduct problems and having a first birth outside any co-residential arrangement with the co-parent seems

particularly salient. Becoming a father relatively early in life but not living with the child's mother is quite likely to be a stressful event that, at the very least, leads to financial strain, and may exacerbate later mental health problems for the father but also possibly the mother.

Our results are in some parts in line with previous research. For example, Jokela (2014), using data from the British National Child Development Study, found similar patterns for pregnancies. Externalizing problems were found to increase pregnancy rates primarily in young adulthood, and the association attenuated with increasing age. For internalizing problems, in turn, the associations decreased the risk of planned and non-planned pregnancies, particularly in later adulthood. However, whereas Jokela (2014) found mental health to matter for both men and women, we only observe this to be the case for men. Further, the same study found that externalizing problems among women increased the risk of miscarriages and induced abortion, in early adulthood, outcomes which are not available in this study. Thus, we cannot rule out that mental health problems may have consequences for

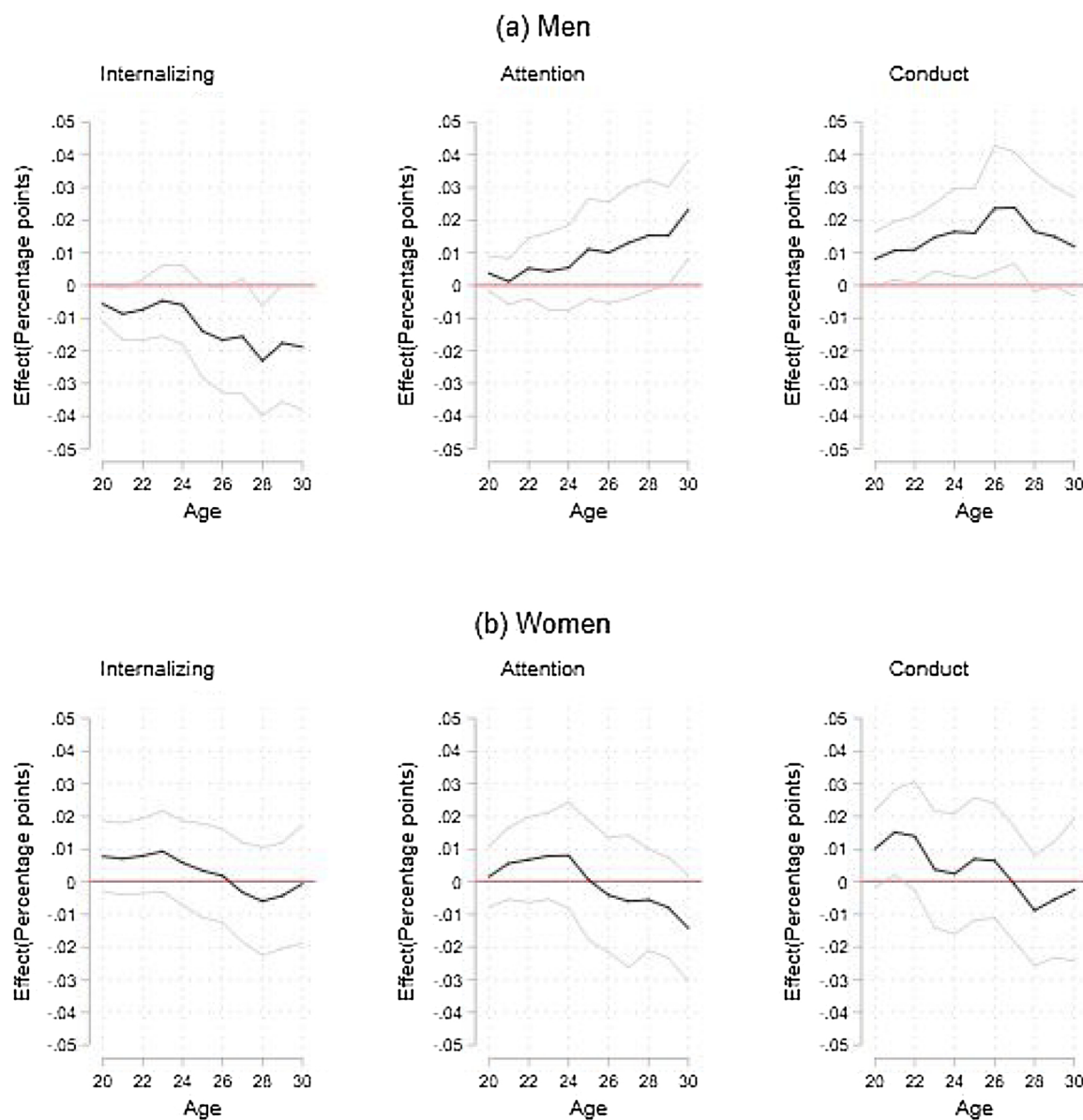


Fig. 2. The association between mental health in adolescence and timing of first birth within a union. Linear probability models.
Notes: Each panel plots results from linear probability models estimating the effect of the relevant mental health problem indicator on having experienced first birth within a union separately for each year from age 20 through 30. All models control for all mental health problem indicators simultaneously, parental education, parental divorce, whether the child was the first born to his or her mother, number of siblings, immigrant background, and school fixed effects. The grey lines refer to 95 % confidence intervals.

young women's reproductive health, and this warrants further investigation.

How can we understand the pathways between adolescent mental health and later family formation behavior? We found some indications that the association between internalizing (decreasing) and attention problems (increasing) and first birth by age 30 seem to be driven by those with low childhood socioeconomic status (Table 5). Thus, at least among men the association between mental health problems and family formation differ by childhood socioeconomic status. Overall, these results should receive further interest from scholars who aim to more fully understand the interplay between family background and childhood (mental) health in shaping young adults' entry into family life.

Given that the associations were generally little affected by adjusting for educational attainment, it seems that these dispositions have a direct effect on family-formation behavior rather than working indirectly through lower educational attainment. Thus, health selection, at least among men, seems to be an important factor in family

formation in and of itself. However, there is a possibility that mental health problems in themselves are not causally related to family-formation behavior, but that these relationships are confounded by other background characteristics (e.g., childhood traumas or broader personality traits). Thus, our results are correlational and should be interpreted with this limitation in mind.

To put the magnitude of these associations in context, we can compare them with the coefficients for having divorced parents (cf. model 2 in Tables 2 and 3). We focus on men- for which we find most significant associations. For first births (Table 2), the coefficient for having divorced parents is estimated to 0.17, although it is not significant. By comparison, a one standard-deviation increase in attention and conduct problems is related to an increase in the probability of a first birth by 2.0 and 2.3 percentage points, respectively. If we look at first birth within a union (Table 3), the coefficients for divorced parents is estimated to reduce the probability of experiencing this event by 3.7 percentage points. By comparison, a one standard-deviation increase in

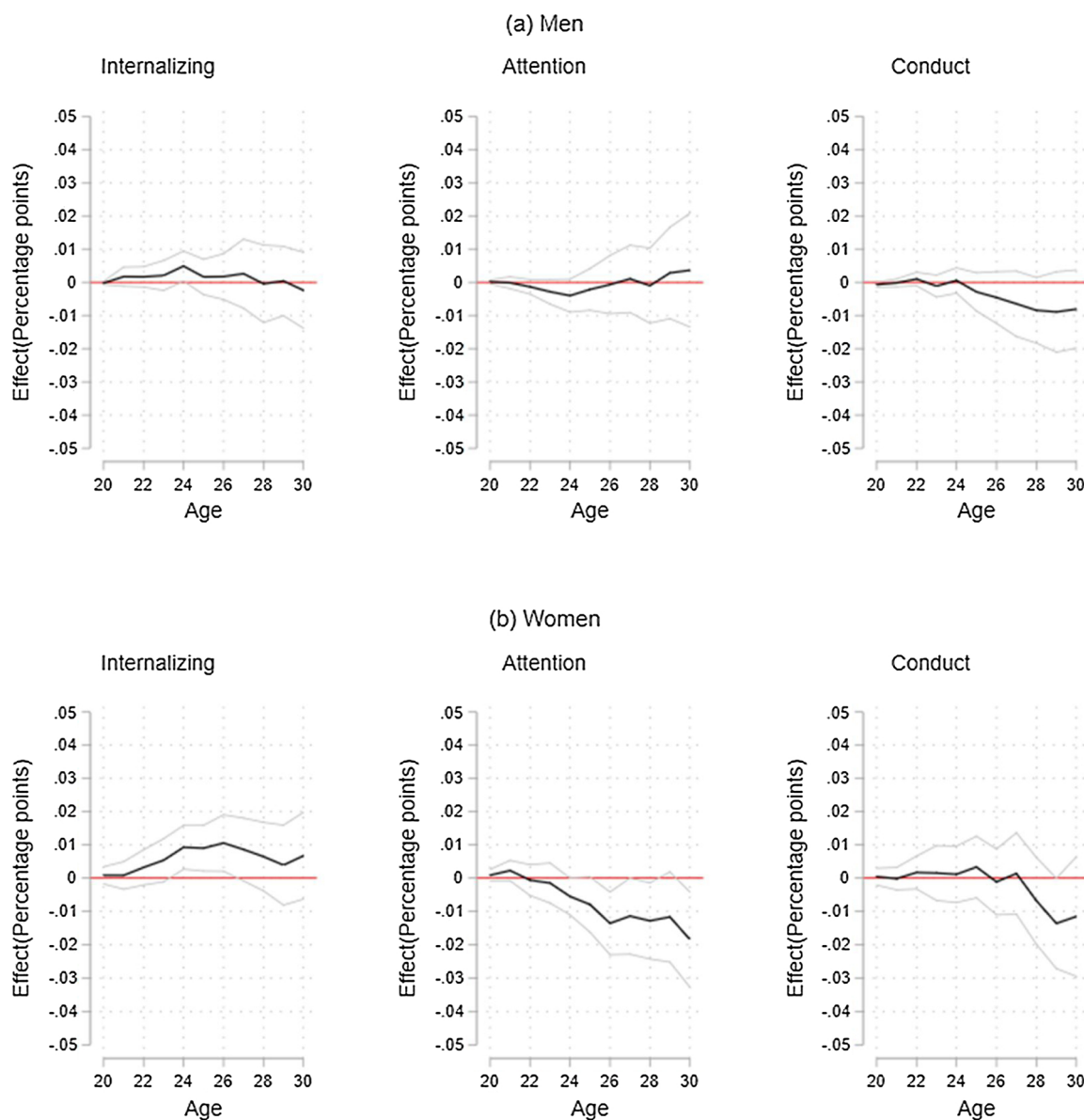


Fig. 3. The association between mental health in adolescence and timing of first marriage. Linear probability models.
Notes: Each panel plots results from linear probability models estimating the effect of the relevant mental health problem indicator on having experienced first marriage separately for each year from age 20 through 30. All models control for all mental health problem indicators simultaneously, parental education, parental divorce, whether the child was the first born to his or her mother, number of siblings, immigrant background, and school fixed effects. The grey lines refer to 95 % confidence intervals.

attention problems reduces the probability of a first birth in a union by 2.4 percentage points and a one standard-deviation increase in conduct problems reduces the same probability by 1.2 percentage points. Thus, the estimated associations indicate that the influence of adolescent mental health problems on family-formation outcomes is not trivial when compared to the role of other known risk factors.

Of course, our results are limited by the fact that we are only able to investigate transitions to family formation by age 30, which excludes transitions that occurs with increasing age. Thus, we might observe different associations for later age ranges. Further studies should extend the age range and examine if and how these associations unfold into middle adulthood. Another limitation concerns the generalizability of these associations to other contexts. For example, the Nord-Trøndelag county lacks large cities, and the population may be more homogenous compared to other parts of Norway. Further, Norway stands out as a national context where family-formation processes often are delayed and less tied to formal unions. Given that such demographic changes

are increasingly common in Western countries, although Norway has been a forerunner in such changes, we might nonetheless expect to see a similar influence of adolescent mental health problems on family-formation behaviors in other national contexts.

To conclude, over the last few decades social scientists have established a large body of knowledge on the consequences of child and adolescent health for later-life outcomes, but this literature has, to date, had a limited focus on how family formation is affected. In the face of the demographic changes, which has brought more instability and uncertainty in young adults life course, there is a need to better understand the determinants of family formation (Eickmeyer & Manning, 2018; Schoen, Landale, & Daniels, 2007). This study represents a contribution to the small but growing body of research on how health and behaviors in adolescence are related to later family formation. Further, we document that there are important differences by gender and social origin in the role mental health plays for union formation and fertility in early adulthood.

Table 5
The association between mental health problems and family behavior outcomes.

	First birth		First married	
	Low parental education	High parental education	Low parental education	High parental education
Panel A: Men				
Internalizing problems	-0.022 (0.015)	-0.007 (0.013)	-0.006 (0.011)	0.002 (0.009)
Attention problems	0.037** (0.014)	0.005 (0.012)	0.002 (0.010)	0.002 (0.009)
Conduct problems	0.028* (0.013)	0.023* (0.011)	-0.010 (0.009)	-0.007 (0.008)
Number of individuals	1680	2454	1680	2454
Panel B: Women				
Internalizing problems	0.002 (0.011)	0.008 (0.010)	0.017 (0.010)	-0.003 (0.009)
Attention problems	-0.003 (0.013)	0.001 (0.012)	-0.015 (0.012)	-0.020+ (0.011)
Conduct problems	0.002 (0.014)	0.018 (0.013)	-0.013 (0.014)	-0.013 (0.012)
Number of individuals	1716	2442	1716	2442

Notes: All models include same control variables as Model 3 in Table 2. + p < 0.10; * p < 0.05; ** p < 0.01; *** p < 0.001 (two-tailed tests).

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Appendix A

Table A1
The association between dichotomous measures of mental health problems and family formation behavior.

Panel A: Men	First birth	First married
Internalizing problems	-0.030 (0.026)	-0.023 (0.019)
Attention problems	0.068* (0.029)	-0.016 (0.021)
Conduct problems	0.031 (0.027)	-0.015 (0.020)
Number of individuals	4134	4134
Panel B: Women	First birth	First married
Internalizing problems	0.037* (0.018)	0.023 (0.017)
Attention problems	-0.013 (0.025)	-0.060* (0.024)
Conduct problems	0.019 (0.036)	-0.033 (0.034)
Number of individuals	4158	4158

Notes: All models control for birthyear, age at screening, number of siblings, firstborn, parental education level, parental divorce.

* p < 0.05; ** p < 0.01; *** p < 0.001 (two-tailed tests).

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