

Participation in employment and day care for adults with intellectual disabilities: Equal access for all?

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Abstract

Background: The employment rate for people with intellectual disabilities is low. This study aims to increase the knowledge about the association between age, gender, diagnosis, functional level, educational level, and daily activities for adults with intellectual disabilities.

Method: A multinomial logistic analysis was applied to registry data on 12,735 adults with intellectual disabilities from the Norwegian Information System for the Nursing and Care Sector (IPLOS) and Statistics Norway (SSB).

Results: Higher likelihood of employment and day care participation were associated with younger age but differed between genders and diagnoses. High functional level and lack of a registered functional level decreased the likelihood for employment. Educational level was not associated with employment.

Conclusions: The systematic differences in employment and day care participation among people with intellectual disabilities indicate that actions are needed to prevent inequalities. Improved individual assessment of personal resources and wishes might promote participation in employment and day care.

KEYWORDS

day care, education, employment, functional level, inclusion, Intellectual disabilities

1 | INTRODUCTION

As part of the Nordic welfare model, Norway aims for equal access to health and social services, equal possibilities for independent living and equal opportunities to enter the labour market, including people with intellectual disabilities (Ministry of Children, 2012–2013; Ministry of Labour & Social Affairs, 2002–2003; NOU, 2016: 17). Equal rights to employment for people with intellectual disabilities are also included in the UN's *Convention on the Rights of Persons with Disabilities* (CRPD) (United Nations, 2006, Article 27). Nonetheless, a decline in employment and day care participation has been recorded among people with intellectual disabilities in Norway (Engeland & Langballe, 2018; Sørderstrøm & Tøssebro, 2011); in 2015, more than half were registered as neither employed nor in municipal day care

(Engeland & Langballe, 2018). A similar downward trend has been observed internationally (Lysaght et al., 2015; Taanila et al., 2005).

Meaningful activities positively impact health, quality of life (QOL), and well-being (Fleming et al., 2013; Heggebø, 2016; McCausland et al., 2020; van der Noordt et al., 2014). Schallock's (2002) model of QOL includes perceptions, behaviours, and conditions that reflect a person's well-being. Employment and day care activities should, therefore, be situated in QOL models.

For countries that have ratified the CRPD, employment definitions for people with intellectual disabilities need to be inclusive and supportive, and workplaces must provide reasonable accommodations (United Nations, 2006). In Norway, 71% of the general working population were employed in 2015, and only 0.2% under the age of 67 were registered in day care (Statistics Norway,

2015). However, only 25% of people with intellectual disabilities in Norway were registered as employed and 21% as participants in day care (Engeland & Langballe, 2018). There are no assessment requirements regarding resources and needs for people with intellectual disabilities before disability pension decisions are made by the Norwegian Labour and Welfare Administration (NAV). In 2013, about 14,800 people with intellectual disability in Norway received disability pensions (Engeland & Langballe, 2018), which is 97% of this population (Wendelborg & Tøssebro, 2018). The same year, only 9% of the general population received a disability pension (Ellingsen et al., 2014), which requires an assessment of the ability to work (Labour & Welfare Administration Act, 2006; National Insurance Act, 1997).

NAV is also responsible for providing employment support for people with difficulties entering the labour market. Those with intellectual disabilities are most often employed in sheltered workshops with individually facilitated work tasks, while very few acquire employment in the open labour market (Engeland & Langballe, 2018), a situation also found internationally (Verdonschot et al., 2009). People with intellectual disabilities may be a valuable employment resource, but they often struggle to find and maintain jobs (Kirsh et al., 2009; Lysaght et al., 2012). For people unable to work, day care centres may provide alternative activities.

Factors associated with the ability to work in the general population are education, age, motivation, health status, and functional level (Harvey, 2001; Rongen et al., 2014). Previous studies on employment predictors for people with intellectual disabilities have focused on political regulations and systems, demographic factors, and personal factors, such as motivation and self-esteem (Foley et al., 2012; Timmons et al., 2011). The increased prevalence of health problems with ageing (McDonald, 2019; World Health Organization, 2015) decreases the likelihood of employment in older age, an effect that is also expected for people with intellectual disabilities (Siperstein et al., 2014).

A diagnosis of intellectual disability alone should not affect employment status; nevertheless, the degree of intellectual disability might affect one's functional level (McGlinchey et al., 2013). Research has indicated that a higher level of functioning increases the likelihood of employment (Martorell et al., 2008; McCausland et al., 2020) and that the ability to manage activities of daily living is the best predictor of success in work for this population (Eagar et al., 2006; McCausland et al., 2020).

In general, higher education indicates better opportunities in the labour market (Ali & Jalal, 2018; Harvey, 2001). Studies on people with intellectual disabilities also report a positive association between completion of upper-secondary school and competitive employment (LoBlanco & Kleinert, 2013; Papay & Bambara, 2013; Shandra & Hogan, 2008). The Norwegian Education Act (The Education Act, 1998) provides the right to individually customised teaching and special education. From primary school through upper-secondary school, people with intellectual disabilities may attend ordinary or specialised schools. Individually customised higher

education for people with intellectual disabilities is not available in Norway (NOU, 2016: 17).

The gender gap in the general labour market has steadily declined in recent decades, but statistics still reveal higher full-time employment rates for men than women (van der Lippe & van Dijk, 2002). Research on gender differences in employment for people with intellectual disabilities is scarce, and the results are contradictory (Martorell et al., 2008; McCausland et al., 2020; McDermott et al., 1999; Umb-Carlsson & Sonnander, 2006). No research exists on gender differences regarding employment for people with intellectual disabilities in Norway.

The varying research results on employment and day care for people with intellectual disabilities indicate a need for a more comprehensive understanding of the facilitators of daily activities for this group. Gaining a thorough understanding of employment and activities for those with intellectual disabilities is complicated by differences within subgroups, such as gender or specific diagnoses. Awareness of the role of intersectionality, first described by Crenshaw (1989), may also promote equal rights and refine decision- and policymakers' perspectives on individuals' abilities to perform work tasks and activities. This nuance in understanding might increase employment possibilities, day care participation and quality of life for people with intellectual disabilities.

To the authors' knowledge, the present study is the first to explore employment and day care participation, combining the association with age, gender, educational level, diagnosis of intellectual disability, and functional level for people with intellectual disabilities. No previous research has combined all these variables in any region. Furthermore, by exploring registry-based data for a large sample of people with intellectual disabilities in Norway, this study aims to increase the knowledge of employment and day care participation for this group.

2 | METHOD

The study had a cross-sectional design and was based on registry data from two national population-based registries: the Norwegian Information System for the Nursing and Care Sector (IPLOS) and Statistics Norway (SSB). Data from 2015, the most recent year available, were used for the analysis. The data were linked by means of unique personal identification numbers.

The study was approved by the Regional Committees for Medical and Health Research Ethics (REK, ref. 2014/1158), the Norwegian Data Inspectorate (NSD, ref. 40853/7/LT/LR) and the examined registries.

2.1 | Study population

The eligible study population comprised 14,329 people registered with intellectual disabilities in the Norwegian Labour and Welfare Administration register of disability pension between 18 and

67 years of age on 31.12.2013 and alive on 31.12.2015. The population was drawn in 2013, as a high number of registered diagnoses of intellectual disabilities were recorded by NAV that year.

In Norway, a diagnosis of intellectual disability is determined by a healthcare specialist, defined by the International Classification of Diseases version 10 (ICD-10) (World Health Organization, 2016). For the aims of this study, only diagnoses with a high probability of intellectual disability were included mental retardation (F70–F79), disorders of psychological development (F84.0, F84.1, F84.2 and F84.4), Down syndrome (Q90), chromosomal abnormalities, and disorders not classified elsewhere with a high probability of intellectual disability (Q91.1–Q91.4).

People with intellectual disabilities who participated in education as their main daytime activity ($n = 188$) were not considered relevant for the present study and thus excluded from the analysis. The oldest group (64 to 69 years) was excluded because of the likelihood of displacement between the time of inclusion in 2013 and the analysis of status in 2015, indicating a possibility of retirees in this group ($n = 1,177$). People in other types of facilitated employment (supported employment, wage subsidies, work practice, and clarification of ability to work) ($n = 40$) were also excluded because the group included incomparable types of facilitation methods.

Of those registered with community-based services, 377 (2.6%) people lacked any registration of their functional level. A comparison of models supported the model without that category and was, therefore, excluded from the analysis.

Hence, the final sample included in the analyses comprised 12,735 people with intellectual disabilities, a response rate of 88% of the potential eligible population (Figure 1). The data set analysed in this study had no missing values.

2.2 | Study variables

2.2.1 | Outcome variable

Since people with intellectual disability are mainly employed through employment services, employment type was defined as being registered in Statistics Norway as participants in sheltered or open employment. Sheltered employment is defined as an individually facilitated job in a sheltered environment, whereas open employment is a facilitated job with support in a mainstream employment (The Norwegian Labour Market Act, 2004). In both settings, workers are expected to meet certain production requirements and receive a limited salary in addition to their disability pension, subsidised by the Norwegian Labour and Welfare Administration (NOU, 2012: 6).

Day care centres are defined as publicly financed, community-based centres with daily activities registered in the Norwegian Information System for the Nursing and Care Sector (IPLOS). In Norway, day care centres provide services to people who need support for personal care, social support, activation and training in

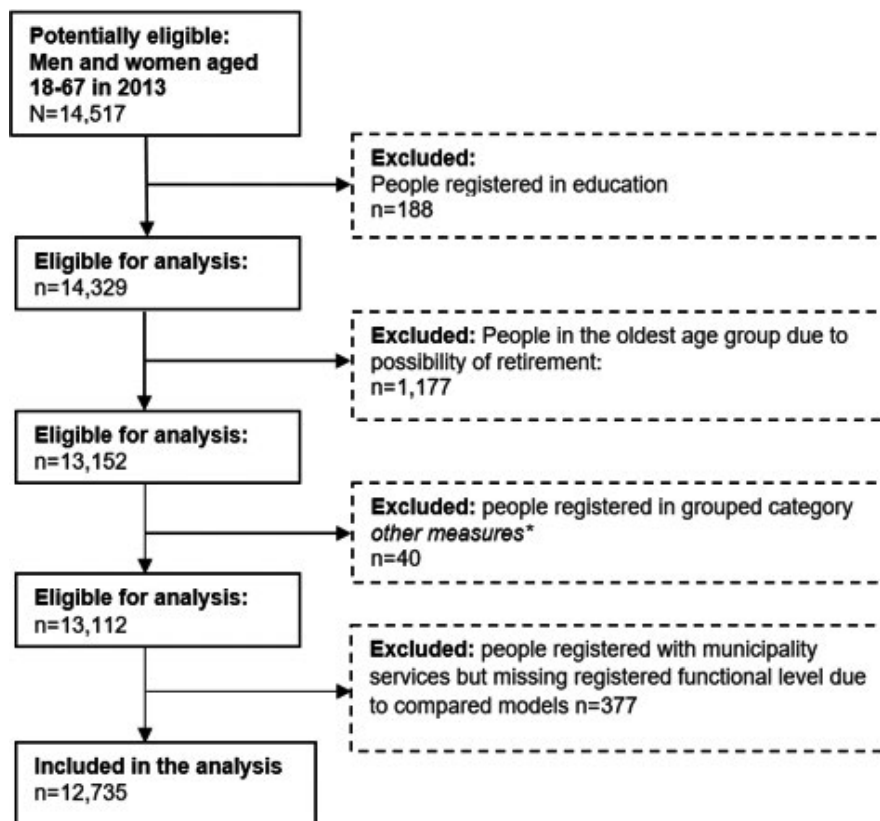


FIGURE 1 Flow chart for study population

activities of daily living (ADL), adapted to individual functional abilities (The Norwegian Health & Care Service Act, 2011).

To avoid duplicate registrations of persons registered with more than one type of activity, the highest-level activity was selected for the analyses. A total of 149 people were listed in both day care and sheltered employment and registered with sheltered employment in the analyses. Fifteen were listed in both day care and open employment and registered with open employment in the analyses.

The most recent year for employment status in Statistics Norway and day care participation registered in IPLOS, prior to 31.12.2015, was used for the main analyses, when the sample population was 20 to 63 years old.

The outcome variable had four levels: no registered employment/day care participation, day care, sheltered employment and open employment.

2.2.2 | Predictor variables

All predictor variables were categorical and included age, gender, educational level, diagnosis of intellectual disability and functional level. Age, gender and educational level were derived from SSB per 31.12.2015.

Educational level was grouped into three categories according to the highest completed level: *no education, primary and secondary school and upper-secondary school or higher*. Primary and secondary school are hereafter referred to as low educational level and upper-secondary school or higher as high educational level.

Diagnosis of intellectual disability was defined as a registered diagnosis of intellectual disability being the cause for a disability pension. The diagnoses were grouped into five categories by SSB: *mild (F70), moderate (F71), severe/profound intellectual disability (F72 and F73)* (hereafter referred to as severe), *unspecified intellectual disabilities (F78–79, F84.0–F.84.2, F84.4 and Q91.1–Q91.4)* or *Down syndrome (Q90)*. The group with unspecified intellectual disability included people with the diagnoses *unspecified* and *other intellectual disabilities* (88%) as well as diagnoses with few individuals in order to secure anonymity (12%). Of note, Down syndrome differs from the other diagnostic groups of intellectual disabilities as the other diagnoses describe either the degree of intellectual disability or are unspecified. In contrast, people with Down syndrome are registered within the same group, although they may have different degrees of intellectual disability.

Functional level is registered (in IPLOS) for people who receive community-based services by assessing their ability to perform different activities of daily living regardless of diagnosis. These registrations include assessments of difficulties in social functioning, cognitive function, self-care and ability to perform household tasks. The overall functional level is scored according to three main groups, high (≤ 2), moderate ($> 2-3$) and low functional level (> 3), by means of the total score of all questions (scored 1–5, *no difficulty* to *extreme difficulty*). Since day care is a community-based service, a functional

level is registered for all people in day care. A functional level for people in employment with support is registered only if they receive any other community-based services (Proba, 2016). In our data set, 27% (3,444 of 12,735) do not receive community-based services and are consequently not registered with a functional level. Therefore, a fourth category of people not registered with a functional level was added, which means they are not registered with community-based services.

3 | STATISTICAL METHODS

To assess the association between predictor variables and the four-level employment status outcome variable, a multinomial logistic model was applied using employment type or day care participation as the reference. Results are presented as odds ratios (OR). All predictor variables were included to control for confounding. Two-tailed p-values of less than 5% were considered significant. A sub-analysis with Down syndrome coded as a dichotomous variable (yes/no) was performed.

Interactions between functional level and age group and between functional level and diagnosis were also tested by using the Hosmer–Lemeshow goodness-of-fit test, which supported the exclusion of both interactions. The goodness-of-fit test also supported simplifying the model by treating age as a continuous variable in the analyses.

Post-tests showed that the model in the analyses contributed to 34% of the precision in employment and day care participation for people with intellectual disabilities (Nagelkerke's $R^2 = 0.34$), while the validity test for the model gave no indication to reject the model (Hosmer–Lemeshow $p > .01$).

All analyses were performed in STATA/IC version 15.1.

4 | RESULTS

4.1 | Descriptive statistics

Of the total sample of 12,735 (45% women), 22.2% were registered in day care, 23.4% in sheltered employment, 2.7% in open employment and 51.7% neither employed nor in day care (Table 1). Employment/day care participation decreased with age. The prevalence of people in sheltered employment decreased by 10 percentage points from the youngest group (age 20–26) to the oldest (age 58–63). Compared to sheltered employment and day care, the prevalence of people in open employment was significantly lower, with 5.7% in the youngest group and only 0.3% in the oldest group. Women were more likely to participate in day care than men, whereas men were more often employed in sheltered workshops.

Most people with intellectual disability (77.8%) had education at the primary and secondary school level only. Under 0.1% were registered with a level of upper-secondary school or higher, and 68.2% of

TABLE 1 Frequencies in different type of employment and day care to all predictor variables

	Employment type										
	Neither employed/ nor in day care		Day care		Sheltered employment		Open employment		Total		
	n	%	n	%	n	%	n	%	n	%	
Total		6580	51.7	2822	22.2	2984	23.4	349	2.7	12735	100
Age group	20–26	866	41.5	589	28.2	515	24.7	118	5.7	2088	100
	27–31	630	42.5	326	22.0	442	29.8	85	5.7	1483	100
	32–36	624	46.4	302	22.5	380	28.3	39	2.9	1345	100
	37–41	750	51.0	321	21.8	370	25.1	31	2.1	1472	100
	42–46	893	54.8	340	20.9	373	22.9	23	1.4	1629	100
	47–51	843	55.6	294	19.4	352	23.2	26	1.7	1515	100
	52–57	966	57.8	356	21.3	327	19.6	22	1.3	1671	100
	58–63	1008	65.8	294	19.2	225	14.7	5	0.3	1532	100
Gender	Women	3017	52.7	1307	22.8	1258	22.0	147	2.6	5729	100
	Men	3563	50.9	1515	21.6	1726	24.6	202	2.9	7006	100
Education	≥ Upper-secondary	617	68.2	85	9.4	178	19.7	25	2.8	905	100
	Primary school	5108	51.5	1962	19.8	2545	25.7	296	3.0	9911	100
	No education	855	44.6	775	40.4	261	13.6	28	1.5	1919	100
Diagnosis of intellectual disability	Mild	1468	66.8	136	6.2	482	21.9	112	5.1	2198	100
	Moderate	251	48.9	91	17.7	144	28.1	27	5.3	513	100
	Severe	868	47.5	650	35.6	302	16.5	8	0.4	1828	100
	Unspecified	3675	52.6	1507	21.6	1631	23.4	170	2.4	6983	100
Functional level	Down syndrome	318	26.2	438	36.1	425	35.0	32	2.6	1213	100
	High	672	55.4	92	7.6	394	32.5	56	4.6	1214	100
	Moderate	1361	38.8	630	18.0	1369	39.1	145	4.1	3505	100
	Low	1800	39.4	2100	45.9	634	13.9	38	0.8	4572	100
	Not registered	2747	79.8	- ^a	- ^a	587	17.0	110	3.2	3444	100

^aRegistered in day care not possible without registered functional level

this group were registered neither as employed nor as participants in day care. Under 0.2% were registered with no education.

Among the participants, 54.8% were diagnosed with an unspecified intellectual disability. The prevalence of not being registered in employment or day care was highest for people with mild intellectual disability (66.4%) and lowest for people with Down syndrome (26.2%).

Of those registered with high functional levels, 55.4% were registered as neither employed nor in day care. The prevalence for moderate and low functional levels was 38.8% and 39.4%, respectively. The rate of people registered as neither employed nor in day care was especially high among those without a registered functional level (79.8%).

4.2 | Predictors of employment and participation in day care

Older age was negatively associated with participation in employment and day care, especially participation in open employment

(Table 2). For men, the odds of participating in day care was lower than for women (OR =0.86, 95% confidence interval (CI) 0.78, 0.96) and higher for participation in sheltered employment (OR =1.16, 95% CI 1.06, 1.28). No significant gender differences were found regarding attendance in open employment.

Education was inversely associated with the odds of being registered in day care and sheltered employment; compared to people with high educational levels, those with low levels were more likely to be registered in day care (OR =1.44, 95% CI 1.11, 1.88) and sheltered employment (OR =1.23, 95% CI 1.02, 1.48). People registered without education were more likely to participate in day care and less likely to engage in sheltered and open employment. People with upper-secondary school education or higher were more likely to be registered in sheltered employment compared to those with primary or secondary school education. There were no significant differences in participation in open employment for people with upper-secondary school education or

TABLE 2 OR of being registered in employment types and day care compared to not employed or in day care, fully adjusted for all predictor variables

	Day care			Sheltered employment			Open employment		
	OR	95% CI	p-value	OR	95% CI	p-value	OR	95% CI	p-value
Age	0.89	0.87–0.91	<0.001	0.90	0.87–0.92	<0.000	0.69	0.65–0.73	<0.000
Gender									
Women ^a	-	-	-	-	-	-	-	-	-
Men	0.86	0.78–0.96	0.005	1.16	1.06–1.28	0.001	1.19	0.95–1.49	2.121
Education									
≥ Upper-secondary school ^a	-	-	-	-	-	-	-	-	-
Primary and Secondary school	1.44	1.11–1.88	0.007	1.23	1.02–1.48	0.027	0.78	0.51–1.20	0.265
No	1.78	1.35–2.36	<0.001	0.83	0.66–1.06	0.131	0.62	0.35–1.11	0.111
Diagnosis of ID ^b									
Mild ID ^a	-	-	-	-	-	-	-	-	-
Moderate ID	1.56	1.13–2.15	0.007	1.49	1.17–1.89	0.001	1.29	0.82–2.02	0.257
Severe ID	3.12	2.42–4.03	<0.001	1.65	1.34–2.03	<0.000	0.73	0.33–1.60	0.433
Unspecified ID	2.41	1.96–2.96	<0.001	1.47	1.29–1.67	<0.000	1.02	0.78–1.33	0.881
Down syndrome	3.83	3.00–4.89	<0.001	3.03	2.50–3.67	<0.000	1.37	0.89–2.11	0.157
Functional level									
High ^a	-	-	-	-	-	-	-	-	-
Moderate	2.79	2.19–3.54	<0.000	1.45	1.25–1.68	<0.000	1.03	0.74–1.44	0.860
Low	6.04	4.78–7.63	<0.000	0.51	0.43–0.60	<0.000	0.23	0.15–0.35	<0.000
Not registered	- ^c	- ^c	- ^c	0.38	0.32–0.44	<0.000	0.50	0.35–0.69	<0.000

^aReference categories in the analysis

^bID =Intellectual disability

^cRegistered in day care not possible without registered functional level

higher compared to those with primary and secondary school or no education.

Compared to people with mild intellectual disability, those with other diagnoses of intellectual disability were more likely to attend day care and sheltered employment. People with severe intellectual disability and Down syndrome were the most likely to attend day care. People with Down syndrome were three times more likely to participate in sheltered employment than those with mild intellectual disability (OR =3.03, 95% CI 2.50, 3.67). There were no significant differences in open employment between the diagnoses.

People with low or moderate functional levels were more likely to be registered in day care than those with high functional levels, with 6 times higher odds for those with low functional levels (95% CI 4.78, 7.63) and 2.8 times higher odds for those with moderate functional levels (95% CI 2.19, 3.54). Moderate versus high functional level was associated with a higher odds of sheltered employment (OR =1.45, 95% CI 1.25, 1.68). People with low functional levels were less likely to be in sheltered employment (OR =0.49, 95% CI 0.43, 0.60). Compared to people with high functional levels, those without a registered functional level were less likely to be in sheltered employment (OR =0.38, 95% CI 0.32, 0.44) and open employment (OR =0.5, 95% CI 0.35, 0.69). People with low functional levels

were the least likely to be registered in open employment. There was no significant difference in participation in open employment between those with high and moderate functional levels.

Compared to other diagnoses of intellectual disabilities, for people with Down syndrome the odds for day care participation were 1.7 times higher (95% CI 1.47, 2.03) and 2.2 times higher for sheltered employment (95% CI 1.86, 2.57).

5 | DISCUSSION

This large, national and registry-based study found low employment rates and day care participation among people with intellectual disabilities in Norway, which is in line with related international studies (Lysaght et al., 2015; Taanila et al., 2005). However, to our knowledge, no fully comparable research exists using national registry data that combines the association of employment, educational level, diagnosis of intellectual disabilities, employment and functional level.

The way work is defined in official policy reports can affect employment opportunities for people with intellectual disabilities. Countries that have ratified the CRPD commit to inclusive and supportive labour policies, with a definition of work that reflects

this. Norway ratified the CRPD in 2013, but the UN committee on the CRPD initially expressed concern about Norway's lack of implementation of the convention in laws and politics and the limited inclusion of persons with disabilities in the open labour market (Committee on the Rights of Persons with Disabilities, 2019). An official Norwegian report about improving the rights of people with intellectual disabilities defines work as activities that add value related to the production of goods and services (NOU, 2016: 17, p. 72). This definition might exclude people with intellectual disabilities because the production demands can be difficult to achieve; however, work for this group may still be valuable. Moreover, definitions of work that include production demands may conflict with the CRDP, which emphasises that work is a right and shall not be exclusive.

Most employed people with intellectual disabilities work in sheltered employment settings. In Norway, far too few positions exist compared to the expressed needs of sheltered workshops, open employment and supported employment (Mandal, 2008; Reinertsen, 2012; Spjelkavik et al., 2012). Additionally, many sheltered workshops have high production requirements, which may increase competition for candidates in sheltered employment. Among people with intellectual disabilities, those whose diagnoses involving a potentially higher capacity for production may be preferred (Brage & Thune, 2015; Engeland & Langballe, 2018).

The assessments of functional level by NAV are to map people's resources and possible workplace accommodations to find appropriate employment. One reason for the low employment rates in Norway might be the lack of functional level assessments for people with intellectual disabilities before decisions on disability pension are made (Wendelborg & Tøssebro, 2018). Although we find support for this assumption in our data, with low employment rates among people with intellectual disabilities who have not had their functional level assessed, we also find that many people with high functional levels are unemployed. Hence, while this study shows that assessment of functional level is important for employment, the association is more complicated among individuals with high functional levels and should be further investigated. Although national policy is focused on activation and inclusion, people who receive a disability pension are not required to engage in activation measures, which might result in increased seclusion from society.

As for the general population, our research confirms that older age decreases opportunities for employment. This might be a result of the naturally increasing disabilities in older age, but it may also be a result of newer, more inclusive policies that may benefit younger people (NOU, 2016: 17). Research has also indicated that people with intellectual disabilities have challenges in retaining employment and finding new jobs (Holwerda et al., 2013). Nevertheless, meaningful activities still impact the quality of life for older people, including those with intellectual disabilities, and should be pursued (Eakman et al., 2010; Engeland et al., 2018).

Our findings on gender differences in day care and sheltered employment are supported by McDermott's (1999) study on gender differences in employment, with higher attendance in day care for

women, whereas more men were registered in sheltered employment. Research on employment for people with disabilities in general has also found lower employment rates for women (Kavanagh et al., 2015). Traditionally, day care activities are characterised by crafts (Olsen, 2009), while sheltered employment includes manual work and small-scale industrial production (Mandal, 2008). This distinction might be one reason for the gender difference in employment among people with intellectual disabilities. These inequalities may constitute part of the prejudice and stigmatisation regarding resources for this population.

Previous research has found higher employment rates for people with intellectual disabilities with upper-secondary school education (Papay & Bambara, 2013; Shandra & Hogan, 2008). Our results revealed challenges in obtaining employment for people with high education, especially open employment. However, the variable was highly skewed towards low educational level ($n = 9,911$). This may have affected our results on association between educational level and participation in daily activities. Nevertheless, the groups registered with high educational level and no education were of sufficient size (high educational level; $n = 905$, no education; $n = 1,919$) to give some indication that the transition from upper-secondary school to employment is a barrier to employment for this population, which is also supported by other studies (Lysaght et al., 2012; Papay & Bambara, 2013; Shandra & Hogan, 2008). Additionally, several studies have shown that work experiences during upper-secondary school are significantly positively associated with competitive employment (Carter et al., 2012; Gold et al., 2013; Joshi et al., 2012; LoBlanco & Kleinert, 2013; Papay & Bambara, 2013). Increased flexibility in the transition from school to employment might contribute to higher employment rates for people with intellectual disabilities.

Our results indicate that access to sheltered employment and day care differs among specific diagnoses of intellectual disabilities. Resources may vary between degrees of intellectual disability, and we may expect higher employment rates for people with mild intellectual disability. Still, the results show that people with mild intellectual disabilities are the least likely to engage in daily activities. Many with mild intellectual disabilities do not receive public services, which may increase the risk of seclusion from society, but this may also be a result of insufficient awareness of opportunities and support (Engeland et al., 2020). Our finding showing no significant differences in the likelihood of open employment based on the degree of intellectual disability is also surprising.

Additionally, a diagnosis of Down syndrome increases the probability of employment, especially sheltered employment. The higher employment rate for this group might be influenced by Down syndrome often being a visual disability, which increases the chances of being registered in the municipality and receiving a functional level assessment to find suitable daily activities. Down syndrome is also one of the most well-known intellectual disabilities, which may also affect opportunities for work (Bittles et al., 2007; Nota et al., 2014). This indicates a stigmatisation of those with other diagnosis of intellectual disabilities by decision makers or employers. The assessment of the ability to work should always be based on the

assessment of an individual's functional level and resources and not on the diagnosis.

The fact that employment was less likely for people with high functional levels and those without municipal services may indicate that employment for this population is not based on an individual's resources. The lack of such an assessment may be a reason for the low employment rate for this group. Eagar et al. (2006) found that a short screening for ADL and behaviour before leaving school was sufficient to stream people with disabilities into a range of transition-to-work programmes. This indicates that better assessments of individual resources and interests before leaving school might more accurately and precisely predict appropriate daily activities and higher employment rates among people with. Our study indicates that more people with intellectual disabilities are capable of working, which is supported by previous research (Martorell et al., 2008).

5.1 | Implications for research

Although our findings show a very low probability for people with intellectual disabilities to find work in mainstream employment even with support, previous research differs regarding the best employment practices for this group. Whereas Burge et al. (2007) found that integrated employment was preferred in Canada, Reinertsen (2015) found no differences between supported mainstream employment and sheltered employment in self-reported quality of life for people with intellectual disabilities in Norway. Further studies are needed on individual wishes and needs, work and activities for people with intellectual disabilities, quality of life in different work settings and self-determination in the process of finding activities.

Future studies should also include more variables to provide a more complete picture of the topic. For instance, a study from the US reported that one of the most important employment predictors for people with intellectual disabilities is family expectations when finishing school (Papay & Bambara, 2013). Cultural diversity, discrimination and engrained stereotypes about productivity might be barriers to employment. Further studies on these topics are needed. Additionally, more intersectional research is warranted, as it would combine relevant aspects for insights into the role of group diversities in employment.

5.2 | Strengths and limitations

The main strength of this study is its large, registry-based data set with no missing values, including all adults registered with intellectual disabilities in the Norwegian Labour and Welfare Administration register of disability pension. Differences between countries in organising work for this population may complicate the possibilities of comparison. However, there are similarities among Nordic countries regarding employment and day care for people with intellectual disabilities, and thus, these results may be generalised with caution.

The unknown number of unregistered cases with intellectual disabilities in Norway is a limitation. People on the borderline for a diagnosis of intellectual disability are especially difficult to identify (Maulik et al., 2011; Søndena et al., 2010). Additionally, only those registered with a disability pension were included.

In general, there is a low probability of error in registry-based data. A test of errors in Statistics Norway's event database was revealed to be low, which increases the reliability of our results. The functional level is theoretically registered the same way in all municipalities, but differences might occur in assessments and registrations. Due to the exclusion of the oldest group, the study lacks information on people above 63 years of age.

The Norwegian welfare system includes laws and regulations to ensure rights for education and employment. Support systems and activation services might vary between countries, and thus, the results are not generalisable to countries without the same codes and welfare system.

Despite these limitations, the results of the present study indicate factors associated with employment status and day care participation for people with intellectual disabilities.

6 | CONCLUSION

This registry-based study among people with intellectual disabilities found employment and day care participation to be associated with younger age, differing by gender and diagnosis of intellectual disability, but not by educational level. Day care attendance was more likely for women, while men were more likely to work in sheltered employment. People with Down syndrome were more likely to be employed than adults with other diagnoses of intellectual disability. High functional level or a lack of a registered functional level lowered the likelihood of employment, regardless of diagnosis. This study underscores that people with intellectual disabilities are rarely included in activities aimed towards mainstream employment.

These inequalities suggest that more individualised assessments of resources and wishes might increase employment rates among this group. National and local studies are needed to identify the factors that policymakers should address to ensure equal access to employment and day care for adults with intellectual disabilities.

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