AUTHOR	Ida Ringbom, Jaana Suvisaari, Antti Kääriälä, Andre Sourander, Mika Gissler, Tiina Ristikari and David Gyllenberg
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TITLE

Psychiatric disorders diagnosed in adolescence and subsequent long-term exclusion from education, employment, or training

Authors

Ringbom, I., M.D.; Suvisaari, J., M.D.; Kääriälä, A., D.Soc.Sc; Sourander, A., M.D.; Gissler, M., D.Phil.; Ristikari, T. D.Soc.Sc.; Gyllenberg, D., M.D.

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Relevance statement

Long-term exclusion from education, employment, or training (NEET) is an important indicator of youth marginalisation. We found clear associations between the main psychiatric diagnoses in adolescence and long-term NEET in young adulthood. Adolescents who have not finished upper secondary education and who have been diagnosed with autism spectrum disorders or psychosis face a particularly high risk of long-term NEET. They need psychiatric interventions and support to access education and employment. This could help to prevent marginalisation in early adulthood.

Abstract

Background: Long-term exclusion from education, employment or training (NEET) is an important indicator of youth marginalisation.

Aims: The primary aim was to carry out a comprehensive overview of the associations between different psychiatric illnesses and long-term NEET.

Method: We used the register-based 1987 Finnish Birth Cohort study, which includes all live births in Finland during that year. The analyses comprised 55,273 individuals after exclusions due to intellectual disability, death, or emigration. We predicted that psychiatric disorders, diagnosed by specialised services from 1998-2007 when the cohort were 10-20 years of age, would be associated with subsequent long-term NEET. This was defined as NEET for at least five years from 2008-2015, when they were 20–28 years of age.

Results: The prevalence of long-term NEET during follow-up was 1,438 (2.6%) and the associations between long-term NEET and the 11 diagnostic categories we studied were statistically significant ($p<0.001$). In multivariate models we included sociodemographic characteristics and upper secondary education as covariates, and the highest effect sizes, measured by odds ratios (OR) with 95% confidence intervals (CI), were found for psychosis (OR 12.0, 95% CI 9.5–15.2) and autism spectrum disorders (OR 17.3, 11.5–26.0). If subjects had not successfully completed this education, 70.6% of those with autism spectrum disorders and 48.4% of those with psychosis were later long-term NEET.

Conclusions: Adolescents who receive treatment for psychiatric disorders, particularly autism spectrum disorders or psychosis, need support to access education and employment. This could help to prevent marginalisation in early adulthood.

INTRODUCTION

Marginalisation among young people is a major concern for policymakers in many countries,[1] as it is linked to both individual suffering and costs for society. Preventing marginalisation, and identifying it at an early stage, are important for public health and the economy. Psychiatric disorders have been identified as one of the factors associated with marginalisation or social exclusion,[2] although being employed is an essential part of recovering from psychiatric disorders. Apart from providing financial independence, having a job can provide an individual with structure and purpose to their life and a social role without stigma.[3]

Although there is no unique definition of social exclusion[2] or marginalisation, not being in education, employment, or training (NEET) has been widely used as an indicator by policymakers.[1] The term NEET was first used in the UK at the end of the 1990s and was rapidly adopted by organisations across the globe. For example, the European Union uses NEET levels, defined as the proportion of young people who report as NEET during a certain week, to measure how many young people are at risk of becoming socially excluded. Being NEET during a week could be called short-term NEET, and it is common: 12.0% of people between 15-24 years of age in the European Union were NEET in 2015.[1] Being NEET during a week was also associated with psychiatric disorders in a Canadian cross-sectional study.[4] Other definitions of labour market marginalisation have also been linked to certain psychiatric disorders, including being unemployed, on sick-leave or receiving disability pension or welfare support. These include mood disorders, anxiety,

psychosis, substance abuse, neuropsychiatric disorders, behavioural disorders and traits of personality disorders.[5–14] Furthermore, a systematic review has reported well established associations between mental health problems in adolescence and lower educational attainment.[15] However, there have not been any follow-up studies on the association between diagnosed psychiatric disorders and not being in education or employment for several years, which we term long-term NEET. Thereby, the association between psychiatric morbidity and more persistent exclusion from the labour market has not been addressed. The primary aim of this study was to carry out a comprehensive overview of the associations between different psychiatric illnesses and long-term NEET, which was defined as not being engaged in education, employment, and training for at least five years. We chose to study long-term NEET, rather than being NEET for a short time such as one week, because it is a more severe marker of labour market marginalisation.

METHOD

Study design

We used data collected for the 1987 Finnish Birth Cohort study, which has previously been described in detail.[16] This longitudinal study is managed by the Finnish Institute for Health and Welfare and contains extensive data from Finnish nationwide registers for all children born in the country in 1987. This cohort study received approval from the Institute's review board. We also received permission from the registered keepers of the various data sources used in this study, as required by Finnish law. All data were pseudonymised prior to the analyses and handled according to Finnish data protection legislation and regulation. Informed consent was not required because none of the individuals included in the study were contacted.

The cohort comprised data on 59476 people who were born in 1987. We excluded individuals who had lived outside Finland during the study period, died before the end of 2015 or had a diagnosis of intellectual disability.

Definitions of outcomes

Long-term NEET was defined as follows, when none of these criteria were fulfilled for at least five years between 2008-2015: working, studying, being on parental leave or taking part in jobseekers' programmes. The cohort members were all 20-28 years old at the time. Being employed was defined as getting any salary that contributed to a pension scheme. Being in education was defined as receiving any student benefits. Finnish

citizens can get student benefits if studying is their main occupation, and they are progressing in their studies. Parental leave was defined as getting childcare benefits.

Predictors

The main predictors were psychiatric and neurodevelopmental disorders diagnosed by specialised services between 1998-2007, when the cohort members were 10-20 years old. That age range was chosen because outpatient data was available from the year 1998 onwards, when the children born in 1987 turned 11 years old. Only inpatient data were available before that date. The diagnoses were recorded according to the International Classification of Diseases, 10th Revision (ICD-10). They were categorised into diagnostic entities in line with previous reports[16] and are described in detail (Supplemental Table 1). One person could have several different diagnoses. We also separately examined psychiatric inpatient care with a psychiatric main diagnosis.

Socioeconomic background factors

The potential covariates were derived from registers and we chose background factors that had already been associated with adolescent psychiatric disorders and labour market marginalisation in previous studies.[9,17] We considered three childhood socioeconomic factors, namely low parental education level and two parental factors that related to the period before 2005, when the subjects turned 18. These were whether the parents had received any welfare benefits or whether they had been hospitalised with a severe mental health disorder. Parental education was divided into three categories and based on the highest category of either parent: just compulsory education, completed upper secondary

education and a university degree. We also examined two background factors for the subjects: sex and whether they had completed upper secondary education by the end of 2008. [17]

Description of the registers

Data from different sources were linked to each individual using the unique personal identification code that is assigned to Finnish citizens and permanent residents in the Central Population Register. Data from eight registers were used for this study. The Medical Birth Register identified the subjects' mothers and the Care Register for Health Care provided diagnoses from public specialised services. Statistics Finland determined if any of the subjects had died and the level of education that their parents had attained. The Central Population Register identified emigration data and subjects' fathers. The Finnish Institute for Health and Welfare provided data on welfare benefits, the Finnish Centre for Pensions provided salaries and childcare benefits and The Social Insurance Institution of Finland provided data on students benefits. The Ministry of Economic Affairs and Employment register provided information about participation in jobseekers' programmes. The registers have previously been described in detail. [18]

Information on diagnoses of psychiatric and neurodevelopmental disorders were obtained from the Care Register for Health Care and these were recorded during visits to hospital inpatient units or outpatient clinic in public hospitals across Finland. There are no private paediatric or psychiatric hospitals in Finland, so this source provided comprehensive data. The records are continuously gathered and regularly submitted to the Register by the

Finnish hospital districts. They included the start and end dates of any visits, a mandatory primary diagnosis and optional secondary diagnoses. The Register contains inpatient data since 1969 and outpatient data since 1998. This Register has been widely used for epidemiological research[18] and the diagnostic validity of mental disorders in the Register has, e.g., been studied for autism[19] and schizophrenia.[20]

Statistical methods

Logistic regression was used to quantify the association between adolescence psychiatric disorders and long-term NEET in early adulthood. First, we used univariate models to study each predictor separately. Second, we examined the independent effects of the disorders by using multivariate models that comprised each category of diagnosis and the relevant covariates. We conducted two separate multivariate analyses: one that included parental factors and sex and one that included completing upper secondary education.

Sensitivity analyses were also used to separately examine those who had, or had not, finished upper secondary education before the end of 2008, by the age of 21. This was used as a proxy for any problems with continuing education. We added two extra years to account for late starters, people studying at a slower pace and people taking a gap-year. To examine the potential effect of overlapping diagnoses, we initially examined the cohort by excluding those with a substance use disorder. Then we excluded those with a diagnosis of psychosis or autism spectrum disorders. We also carried out detailed *post hoc* explorations of the two diagnostic groups with the highest odds ratios for long-term

NEET, based on diagnostic ICD-10 codes (see Supplemental Table 1). For autism spectrum disorders, we examined infantile autism, Asperger's syndrome and other types of autism spectrum disorders. Those who had been diagnosed with psychosis were split into three groups: schizophrenia, schizoaffective disorder and other kinds of psychosis.

For autism spectrum disorders and psychosis, we also counted the population attributable fraction (PAF) as ($incidence_{population}$ – $incidence_{unexposed}$) / $incidence_{population}$, and the number needed to be exposed (NNE) as 1 / ($incidence_{exposed}$– $incidence_{unexposed}$). Finally, as the definition of long-term NEET was novel, we also analysed associations between psychiatric diagnoses and NEET status for at least one year and at least three years. We used R statistical software, version 3.4.0 (R Foundation for Statistical Computing, Vienna, Austria) for our analyses.

RESULTS

Participants and setting

The 1987 Finnish Birth Cohort study includes 59,476 people who were born in Finland and survived the perinatal period. Of these 756 (1.3%) died before the end of follow up in 2008-2015, when subjects were 20-28 years of age. Another 2,913 had emigrated and 534 were diagnosed with intellectual disability. The final number included in the analyses was 55,273 (51.5% male), which was 92.9% of the original birth cohort.

Long-term NEET status

One in six of the included cohort members, 9,199 (16.6%), had been outside employment, education and training for at least one year. However, only 1,438 (2.6%) had been long-term NEET for at least five years (Supplemental Figure 1A). The percentage that had been NEET increased towards the end of the 2008-2005 follow up (Supplemental Figure 1B).

Sociodemographic characteristics.

The sociodemographic characteristics of the sample are shown in Table 1. We looked at the 1,438 subjects who had been long-term NEET during 2008-2015, when they were 20-26 years of age. This showed that by the end of 2008, 65.1% of those who were long-term NEET were male and 65.0% had not successfully completed their upper secondary education. Among those who did not complete upper secondary school 10.0% (n=935/9339) were later long-term NEET. Analysing the parents of subjects with long-term NEET showed that 13.5% had a low level of education. In addition, 55.4% had received welfare support and 21.3% had been treated in hospital for a psychiatric disorder before their child was 18 years of age. All associations between sociodemographic factors and long-term NEET status were statistically significant ($p<0.001$), and not having finished upper secondary education showed the highest effect size (OR 10.1, 95% CI 9.0-11.2).

Associations between diagnosed psychiatric disorders and long-term NEET

Table 2 shows that 6,005 (10.9%) cohort members had been diagnosed with a psychiatric or neurodevelopmental disorder in adolescence from 1998-2007, when they were 10-20 years of age. Of these 43.4% were male. Of the diagnostic categories, only substance use disorders, the neuropsychiatric disorders and conduct disorders were more common among male subjects than female.

Of the 1,438 cohort members who were long-term NEET in young adulthood, 633 (44.0%) had been diagnosed with a psychiatric or neurodevelopmental diagnosis in adolescence. The most common diagnoses in those with long-term NEET were depressive disorders (20.1%), followed by anxiety disorders (16.6%). The diagnostic groups with the largest proportion of individuals with long-term NEET status in young adulthood were autism spectrum disorder (44.0%) and psychosis (36.5%).

In the univariate analysis, the odds ratio (OR) for the association between any psychiatric or neurodevelopmental diagnosis in adolescence and long-term NEET in young adulthood was 7.1, with a 95% confidence interval (CI) of 6.4-7.9. When the covariates of parental education, welfare support and severe mental illness, and the subjects' sex, were included, the OR was only moderated to 6.7 (95% CI 6.0-7.5). It was further moderated to 4.2 (95% CI 3.8-4.8) when we included whether or not the subjects had completed upper secondary school education. The ORs of the specific diagnostic categories are summarised in Figure 1, with further data in Supplemental Table 2. The highest effect sizes for long-term NEET in the full multivariate models were for autism spectrum disorder (OR 27.2, 95% CI 18.7-39.3) and psychosis (OR 22.4, 95% CI 18.0-

27.9). The associations were statistically significant for all diagnostic categories ($p<0.001$).

Because of the high effect size between not having finished upper secondary education and NEET-status, we conducted separate analyses on those who did, and did not, reach this level of education before the end of 2008 (Table 3). Of those with autism spectrum disorder who did not complete their upper secondary education 70.6% and of those with psychosis who did not complete their upper secondary education 48.4% were later long-term NEET. Furthermore, the associations with long-term NEET were statistically significant for all diagnostic categories both for those who had a completed upper secondary education and for those who had not (all $p<0.001$).

Additional analyses

We examined psychosis and autism spectrum disorders in more detail as these were the two diagnostic groups with the highest ORs for long-term NEET. These results were in line with the main results (Supplemental Table 3). To study whether highly specified diagnoses changed the main results, we excluded those with infantile autism. Long-term NEET remained similar for Asperger's syndrome in the univariate analysis (OR 29.4, 95% CI 18.5-46.2, $p<0.001$) and for other autism spectrum disorders when we excluded both infantile autism and Asperger's syndrome (OR 21.3, 95% CI 10.5-41.6, $p<0.001$). Similarly, when individuals diagnosed with schizophrenia or schizoaffective disorder were excluded, the association between long-term NEET and other kinds of psychosis remained similar (OR 14.5, 95% CI 11.1-18.9, $p<0.001$). Further, if a causal relationship

could be assumed between these diagnoses and long-term NEET, the population attributable fraction (PAF) and number needed to be exposed (NNE) would be of interest. The PAF was 3.6 % for autism spectrum disorders and 9.6 % for psychosis, and the NNE was 2 for autism spectrum disorders and 3 for psychosis.

Our main analyses included outpatient and inpatient diagnoses from 1998–2007 when our subjects were 10–20 years of age. We also compared the psychiatric main diagnoses for just inpatient care from 1987–1997 when they were 0–10 years of age, as outpatient data was only available from 1998. In the univariate analysis, the OR for long-term NEET for inpatient treatment at 0-10 years of age was 7.3 (95% CI 5.9-9.1, $p<0.001$). The OR for inpatient treatment at 10-20 years was 11.5 (95% CI 10.1-13.0, $p<0.001$) (Supplemental Table 3).

As previous studies only defined NEET as less than five years, we analysed associations for NEET status for over one year and for over three years. All the associations were statistically significant, as they were in the main analyses, but the ORs were lower when NEET was defined for over one or over three years than for five years or more (Supplemental Figure 2).

Finally, because cohort members could be diagnosed with multiple disorders during adolescence, we re-ran the analyses by leaving out individuals who had been diagnosed with either a substance use disorder, psychosis, or autism spectrum disorder. The

associations with long-term NEET remained statistically significantly for all other diagnostic categories (Supplemental Figure 3).

DISCUSSION

Our main result was that being diagnosed with psychiatric disorders in adolescence strongly predicted long-term NEET in early adulthood, regardless of whether subjects had completed upper secondary education or not. Family background did not affect the associations to any substantial degree. The diagnostic groups with the highest prognostic values were psychosis and autism spectrum disorders, with over one-third being long-term NEET in early adulthood. Finally, adolescents with both a psychiatric diagnosis and no upper secondary education faced a high risk for long-term NEET. In this group, almost three-quarters with autism spectrum disorders and just under a half with psychosis were long-term NEET. These results have implications for identifying adolescents who are receiving psychiatric treatment and need educational support, social services and work rehabilitation.

The association between all psychiatric diagnostic categories and long-term NEET could be explained by the social selection theory, which looks at what health problems have an impact on an individual's socioeconomic position.[21] This might happen when individuals find themselves in a low socioeconomic position, due to poor health or health-related expenses. Alternatively, it might lead to a decreased accumulation of human capital, which is the skills, education, capacity an individual has. Low levels of human capacity can result from poor health during critical periods in childhood and adolescence.[22] The

rival theory to the social selection model is the social causation model, which states that low socioeconomic status leads to poverty and other forms of disadvantage. These, in turn, affect mental health.[23] We did not specifically test for the social causation model nor other more complex patterns of socioeconomic and psychiatric events. However, it is of note that psychiatric disorders diagnosed in specialised services independently predicted long-term NEET, regardless of the studied sociodemographic risk markers.

Almost half of the young adults who were long-term NEET had been diagnosed with a psychiatric disorder when they were adolescents. The quality of work rehabilitation services, and the design of disability benefits, are likely to affect people with psychiatric disorders who manage to continue their education and find employment.[24] The evidence-based individual placement and support model for vocational rehabilitation has shown significantly better outcomes for young adults than traditional rehabilitation for young adults.[25] Those who have not finished their studies need support to return to or continue their studies. More research is needed on the best ways of ensuring that young people with mental disorders can finalize their studies.

Earlier studies have shown that the women in this cohort are higher educated than the men, but there are no major differences in the main occupation.[17] We found that more men were on long-term NEET status than women. Among those diagnosed with psychiatric disorders who also were long-term NEET, the proportion who were male was smaller than in the full cohort of long-term NEET. This could be explained by the fact that more women had been diagnosed with psychiatric disorders.

Strengths and limitations

The main strength of this nationwide study was that it covered all Finnish people born in 1987 and followed them up until the age of 28 years. We were able to establish links between an exceptionally large number of register-based data entries. This enabled us to use a comprehensive definition of marginalisation, have a long follow-up period and consider a number of sociodemographic characteristics. The following limitations should be considered. Only diagnoses made by specialised services could be analysed. The diagnostic validity of for example autism[19] and schizophrenia[20] in the Register have been shown to be good, but the diagnostic validity of all mental disorders has not been studied. Outpatient data was available from 1998 onwards, when the children born in 1987 turned 11 years old. This means that we had high-quality data on disorders treated during adolescence. However, the number of diagnosed neurodevelopmental disorders might have been smaller than it should have been, if these were only treated in childhood. On the other hand, individuals whose lives were still considerably affected by neurodevelopmental disorders in adolescence would probably have visited a doctor in specialised care services at some point.

Our definition of the outcome of long-term NEET is novel and should be reassessed in other countries and settings for generalisability. Previous studies have relied on questionnaires or register-based data of just one factor that resulted in individuals being marginalised from the labour market. We used several registers to minimise the risk of including false negative cases of NEET. Finnish administrative registers provide very high

data coverage and they enabled us to assess NEET over a long follow-up period, as they do not suffer from attrition bias. It is important to note that work rehabilitation was not regarded as being part of the labour market. The results were similar, when we compared those who had been NEET for at least one, three or five years, but the effect size between NEET and psychiatric disorders was higher the longer the NEET status had lasted. Although the registers contained information on several covariates related to marginalisation, we lacked information about protective factors and resilience. However, being able to use this number of registers was exceptional. Finally, exact generalisations to other countries should be avoided, due to differences in health and rehabilitation services, social benefits, and labour markets.

CONCLUSIONS

We found clear associations between the main psychiatric diagnoses in adolescence and long-term NEET in young adulthood. These findings suggest that effective adolescent mental health services, including prevention, early intervention, social services, and vocational rehabilitation, should be considered as important elements in a strategy to tackle young people’s marginalization. Combining inclusive and targeted strategies could reduce individual suffering and the costs to society of long-term NEET. The results of this study can function as a baseline if the number of young people who are marginalised or suffer from psychiatric disorders increases after the Covid-19 pandemic.

Authors

Ringbom, I., M.D.[1–3]; Suvisaari, J., M.D.[2]; Kääriälä, A., D.Soc.Sc[2]; Sourander, A., M.D.[1,4]; Gissler, M., D.Phil.[1,2,5]; Ristikari, T. D.Soc.Sc.[1,6]; Gyllenberg, D., M.D.[1–3]

Affiliations

[1] Department of Child Psychiatry and Invest Flagship, University of Turku, Finland

[2] Finnish Institute for Health and Welfare, Finland

[3] Helsinki University Hospital, Department of Adolescent Psychiatry, Finland

[4] Turku University Central Hospital, Department of Child Psychiatry, Finland

[5] Karolinska Institute, Department of Molecular Medicine and Surgery, Sweden and Region Stockholm, Academic Primary Health Care Centre, Stockholm

[6] Itla Children's Foundation, Finland

Corresponding author

David Gyllenberg

Department of Child Psychiatry, University of Turku

Lemminkäinenkatu 3, 3rd. floor, 20014 Turku, Finland

david.gyllenberg@utu.fi

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Data sharing statement

Individual level register-based data cannot be freely shared due to Finnish legislation.

Author contributions

Dr. Ringbom conducted literature search, did the figures and tables, planned the data analysis, analysed the data, interpreted the data and drafted the manuscript.

Dr. Suvisaari planned the study, interpreted the data and revised the manuscript.

Dr. Kääriälä planned the data analysis, interpreted the data and revised the manuscript.

Dr. Gissler interpreted the data and revised the manuscript.

Dr. Ristikari interpreted the data and revised the manuscript.

Dr. Sourander interpreted the data and revised the manuscript.

Dr. Gyllenberg planned the study and the data analysis, interpreted the data, did the figures and revised the manuscript.

Declaration of interest

Dr. Ringbom reports non-financial support from H. Lundbeck A/S outside the submitted work.

Dr. Suvisaari has nothing to disclose.

Dr. Kääriälä has nothing to disclose.

Dr. Gissler has nothing to disclose.

Dr. Ristikari has nothing to disclose.

Dr. Sourander has nothing to disclose.

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Table 1. Sociodemographic characterics and long-term NEET: prevalence and results of the univariate analyses of long-term NEET in subjects with the characteristics

	Total	Long-term NEET	Univariate association
Sociodemographic characteristic	n	n (%)	OR (95 % CI)
Total sample	55,273	1,438 (2.6)	
Male	28,450	936 (3.3)	1.8 (1.6-2.0)
No upper secondary education diploma	9,339	935 (10.0)	10.1 (9.0-11.2)
Parent received welfare support	20,386	796 (3.9)	2.2 (2.0-2.4)
Parent diagnosed with severe psychiatric illness	6,288	306 (4.9)	2.2 (1.9-2.5)
Parental education			
Low	4,238	194 (4.6)	2.3 (1.9-2.7)
Intermediate	24,107	697 (2.9)	1.4 (1.3-1.6)
High	26,928	547 (2.0)	1

Abbreviations: NEET, not in education, employment or training, OR, odds ratio; CI, confidence interval

Table 2. Psychiatric disorders[1] diagnosed by specialised services during adolescence: prevalence of long-term NEET.

	Total	Male	Long-term NEET
Diagnostic class	n	%	n (%)
Total sample	55,273	51.5	1,438 (2.6)
Any psychiatric or neurodevelopmental disorder	6,005	43.4	633 (10.5)
Substance abuse	802	51.6	120 (15.0)
Psychosis	405	44.7	148 (36.5)
Bipolar disorder	138	29.0	26 (18.8)
Depressive disorders	2,372	29.8	290 (12.2)
Anxiety disorders	2,010	34.5	238 (11.8)
Eating disorders	516	8.3	35 (6.8)
Personality disorders	250	33.6	73 (29.2)
Learning disabilites	812	69.0	101 (12.4)
Autism spectrum disorder	125	76.8	55 (44.0)
Attention-deficit/hyperactivity disorder	202	80.2	35 (17.3)
Conduct disorder	757	58.3	119 (15.7)

Abbreviations: NEET, not in education, employment or training

[1] For classification of disorders see Supplemental Table 1.

Table 3. Psychiatric disorders diagnosed by specialised services in adolescence, stratified by those who had and had not finished upper secondary education: prevalence, positive predictive values and univariate associations with long-term NEET.

	Finished upper secondary education			Did not finish upper secondary education		
	Total	Long-term NEET	Univariate association	Total	Long-term NEET	Univariate association
Diagnostic class	n	n (%)	OR (95% CI)	n	n (%)	OR (95% CI)
Total sample	45,934	503 (1.1)		9,339	935 (10.0)	
Any psychiatric or neurodevelopmental disorder	3,572	141 (3.9)	4.8 (3.9-5.8)	2,433	492 (20.2)	3.7 (3.2-4.2)
Substance abuse	342	10 (2.9)	2.8 (1.4-4.9)	460	110 (23.9)	3.1 (2.4-3.8)
Psychosis	157	28 (17.8)	20.7 (13.4-31.0)	248	120 (48.4)	9.5 (7.3-12.3)
Bipolar disorder	63	5 (7.9)	7.9 (2.7-17.8)	75	21 (28.0)	3.6 (2.1-5.8)
Depressive disorders	1,291	65 (5.0)	5.4 (4.1-6.9)	1,081	225 (20.8)	2.8 (2.4-3.3)
Anxiety disorders	1,188	48 (4.0)	4.1 (3.0-5.5)	822	190 (23.1)	3.1 (2.6-3.7)
Eating disorders	410	14 (3.4)	3.3 (1.8-5.4)	106	21 (19.8)	2.2 (1.4-3.6)
Personality disorders	83	11 (13.3)	14.1 (7.0-25.6)	167	62 (37.1)	5.6 (4.1-7.7)
Learning disabilites	484	21 (4.3)	4.2 (2.6-6.4)	328	80 (24.4)	3.1 (2.4-4.0)
Autism-spectrum disorder	57	7 (12.3)	12.8 (5.3-26.6)	68	48 (70.6)	22.7 (13.6-39.2)
ADHD	92	10 (10.9)	11.2 (5.4-20.7)	110	25 (22.7)	2.7 (1.7-4.2)
Conduct disorder	242	13 (5.4)	5.2 (2.8-8.9)	515	106 (20.6)	2.5 (2.0-3.1)

Abbreviations: NEET, not in education, employment or training; ADHD, attention-deficit/hyperactivity disorder

FIGURE LEGEND

Figure 1. Psychiatric or neurodevelopmental diagnoses in adolescence in relation to long-term NEET-status in young adulthood separately for univariate analyses and multivariate analyses with the following sociodemographic characteristics included as covariates: parental education, parent received welfare support, parent with severe mental illness and gender or the previous and not having successfully completed upper secondary education. The odds ratios (OR) and 95% confidence intervals (CI) are presented on a logarithmic scale. The diagnostic categories are ranked by the OR of univariate associations. All associations are statistically significant at $p<0.001$. See Table 2 for abbreviations and explanations.