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## HEALTH PSYCHOLOGY | REVIEW ARTICLE

# “Psychosis among the disconnected youth: a systematic review.”

Line Lindhardt<sup>1\*</sup>, Ole Jakob Storebø<sup>2,3</sup>, Laura Staxen Bruun<sup>1</sup>, Erik Simonsen<sup>2,4</sup> and Ole Steen Mortensen<sup>5,6</sup>

**Abstract:** Disconnection from education and employment in youth termed Not in Education, Employment or Training (NEET) has global attention. Major societal economic consequences and detrimental individual consequences follow disconnection. On the one hand, mental health problems are recognized as essential factors in disconnection, and on the other hand, youth clients within social welfare services face re-integrative initiatives with a vocational perspective. Psychosis and NEET are strongly associated with young help seekers inside mental healthcare services. In this systematic review, we investigate the occurrence of symptoms of psychosis among NEET status youth outside mental healthcare services to clarify if occurrence corresponds to the findings of NEET among help seekers with psychosis inside mental healthcare services. Based on literature search in the six databases MEDLINE, PsycINFO, EMBASE, Web of Science, SocIndex and Cochrane Library for NEETs measured for psychosis, we present findings from a narrative synthesis of two included studies and a total of 179 included participants. Our findings demonstrate sparse literature describing psychosis among NEETs, contrasting findings within mental healthcare settings. The results point to a research gap. Further research exploring unrecognized mental health needs with the focus of severe mental disorders as psychosis among the NEET population is

### ABOUT THE AUTHOR

Line Lindhardt is an MD, fellow in psychiatry, and PhD candidate affiliated to the University of Copenhagen. The scope of her research is early detection of psychosis in youth. Her research focuses on exploring the link between social disconnection in the general youth population and the social disability in early phase psychosis.

### PUBLIC INTEREST STATEMENT

Major societal economic consequences follow disconnection from education and employment in the general youth population which globally is a societal challenge. Social disability is a hallmark symptom in schizophrenia and is suggested to be present in the initial phase of the disorder before more obvious psychopathology. A high prevalence of Not in Education, Employment or Training (NEET) status, has been reported among first-episode psychosis samples, suggesting a connectedness between the vocational disengagement in youth and severe mental health problems. In this article, we report findings from reviewing the occurrence of psychosis among the NEET population. The results of the review reveal sparse knowledge of the occurrence of psychosis among the NEET population. These findings contrast the evidence found within mental healthcare settings of a high prevalence of NEET, among youth with psychosis, and point to a research gap with a need for further investigation of severe mental disorders among the NEET youth.

needed. Joint interventions of welfare benefit system and mental health service are recommended to evolve initiatives for prevention and integration of the NEETs.

**Subjects: Economics; Education & Training; Youth; Unemployment and Mental Health**

**Keywords: Psychosis; NEET; young adults; vocational disengagement; school dropouts; early detection psychosis**

## 1. Introduction

Youth disconnection in transition from education to work-life has global attention (Benjet et al., 2012; Eurofound, 2012; Gutierrez-Garcia et al., 2018; Mendelson et al., 2018).

Young people failing to meet societal demands and facing exclusion from central socializing institutions face considerable individual consequences if not reintegrated (Bäckman & Nilsson, 2016; Co-operation OfE and Development, 2012). Further, lack of reintegration results in major economic consequences for society (Eurofound, 2012; Schultz-Nielsen & Skaksen, 2016). The term “Not in Education, Employment or Training” (NEET) in recent years has been adopted from economic policy literature into the scientific field of psychosocial research (Baggio et al., 2015; Benjet et al., 2012). NEET defines a group of young people disengaged from society, not in education, employment or training. The acronym covers a heterogenic group facing varying difficulties and being in different situations (Yates & Payne, 2007). Country context differences including cultural expectations of normative trajectories, opportunities in education and work-life and perceived reasons for being NEET are considered relevant when looking at NEET from a global perspective (Gutierrez-Garcia et al., 2018, 2017).

Current research has primarily been considering the societal economic loss with a considerable part of a generation standing outside the labour market (Eurofound, 2012). In the NEET population, nevertheless a seemingly heterogenic group, mental ill health is a central topic of concern and repeatedly recognized to play a vital role in youth disengagement across countries (Benjet et al., 2012; Power et al., 2015; Rodwell et al., 2018; Symonds et al., 2016). Young adults who receive temporary welfare benefits and are considered NEETs are found to report psychological distress as the most prevalent health problem (Sveinsdottir et al., 2018). Up to 70% of all new disability benefit recipients among young adults and across countries claim mental health problems as reasons for the economic support need (Co-operation OfE and Development, 2012). Association of NEET status and common mental disorders is reported consistently in cross-sectional and longitudinal designs in population-based studies (Baggio et al., 2015; Basta et al., 2019; Berry et al., 2019; Garipey & Iyer, 2019; Symonds et al., 2016).

Identification of co-existence of disconnection from education and work-life among help seekers in mental health care has been suggested as a risk marker in mental illness trajectories (Cross et al., 2017). Help seekers in primary mental healthcare service in Australia (*headspace*) have been shown to be part of the NEET status youth in 19% of cases (O’Dea et al., 2014).

Psychosis and sign of severe mental disorders such as schizophrenia often emerge in adolescence, thereby affecting the youth population (Hafner & Nowotny, 1995; Kessler et al., 2007; Thomsen, 1996; Volkmar, 1996). Parallel to the identification of the crucial issues of the NEET youth, research in early intervention psychosis has identified disconnection from education and work alongside and preceding emergence of illness (Addington & Addington, 2005; Stilo et al., 2017). Significant rates of NEET status at mental healthcare service entry have been identified across countries among youth experiencing a first episode psychosis (Cotton et al., 2017; Maraj et al., 2019; Turner et al., 2009). In a review, it was reported that 40 to 50% at first contact to early

psychosis services were not in school or employed and the rate rose from 60 to 70%, had there been a long prodrome (Marwaha & Johnson, 2004).

In addition, it has been suggested that the economic inactivity in young adults often precedes recognition of mental illness and that there is a scarcity of screening or monitoring within the economically inactive population for these emerging problems (Scott et al., 2013).

The NEET youth has been stated to be a priority area for labour market policy, with employment and earnings found to be the most commonly measured intervention outcomes (Mawn et al., 2017). The key concepts for inactive young adults in the Nordic countries, which are characterized by extensive welfare systems and little economic inequality, are activation strategies with activity as education and alternatively work-related activity (Reneflot & Evensen, 2014). Consequently, the NEET population is dealt with primarily within the welfare benefit system, with the focus on vocational reintegration and not with the focus of mental health needs.

As a result, and in addition to findings in first-episode psychosis literature with high rates of NEET status in help-seeking young adults, it is hypothesized that a subgroup within the NEET population in fact has severe mental health problems, as symptoms of psychosis, which requires attention. We aimed to identify the occurrence of psychosis among the NEET population outside mental healthcare services and to identify if the presence of symptoms of psychosis could be quantified among the NEET status youth.

## 2. Method

The Systematic Review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Liberati et al., 2009). The systematic review protocol was registered at the International Prospective Register of Systematic Reviews, PROSPERO (ID: CRD42020161689; (PROSPERO)).

### 2.1. Study selection

All types of studies were included with no restriction of study design and independently of presenting a comparator or control group.

Inclusion was restricted to studies presented in English, and the publication date of studies to be included was restricted to year 1999 and onwards, as the term NEET was first presented in a report by the Social Exclusion Unit in Great Britain in the year 1999 (Unit, 1999).

### 2.2. Inclusion and exclusion criteria

Studies were included if they were conducted on NEET-status youth, defined as not in education, employment or training, with no limitations of duration of state and no restriction of scale or criteria used for the measure. The term NEET did not need to be used explicitly. Examples of descriptions where the term NEET was not used and where the study population was still considered relevant for inclusion in the review were as follows: “Not in school or employment” or “vocational and academic disengaged”. Inactivity in both education and employment should be described to meet eligibility criteria for inclusion.

Youth was defined as an age range from 16 to 34 years old, and studies were considered eligible for inclusion if more than half of the population was in this age range or if the terms youth or young adults were used explicitly to describe the study population, then as defined by the authors.

To meet eligibility for inclusion, measure of psychosis had no restriction of quality or methodology used for the measure. The measure could be symptoms described as psychosis by the authors or an

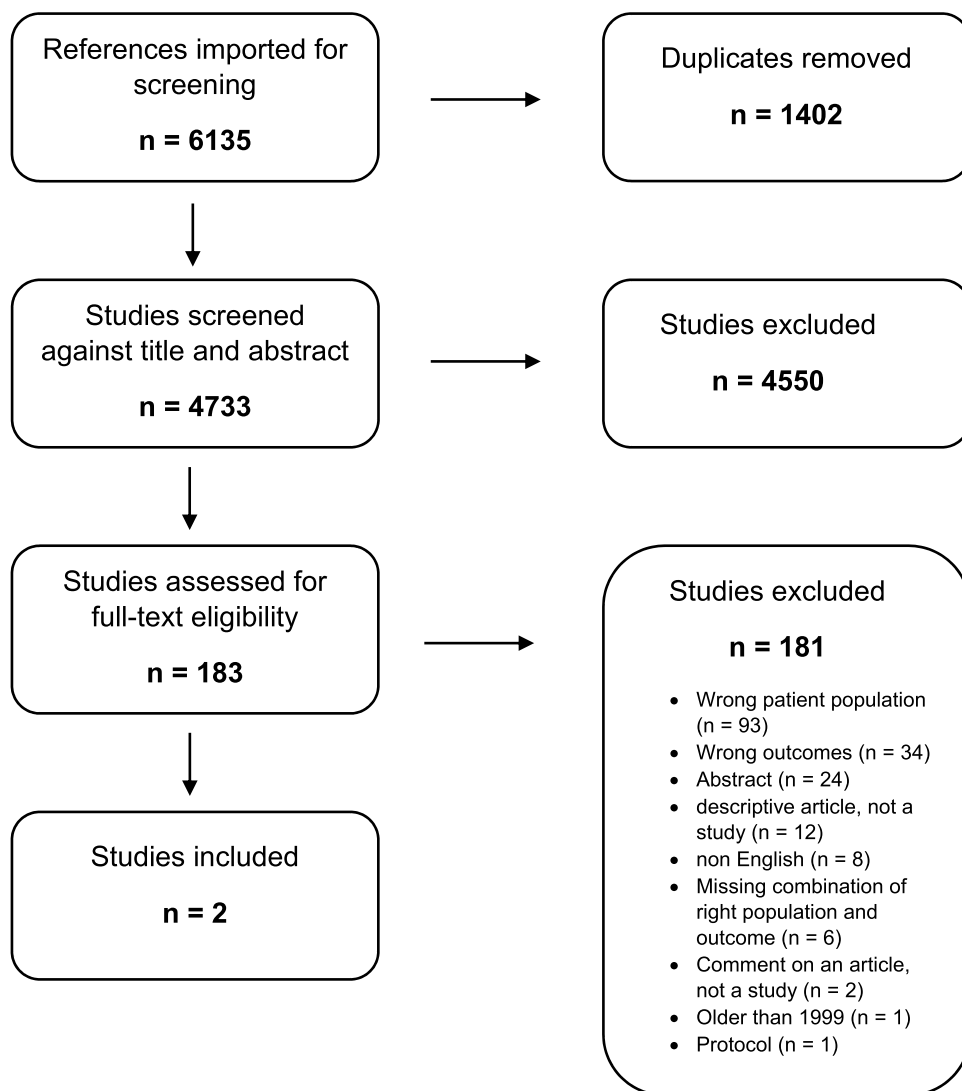
allocated diagnosis of any recognized diagnostic criteria or diagnoses systems and included the diagnostic schizophrenic spectrum psychosis, affective psychosis and substance-induced psychosis.

Studies were excluded if the population of NEET was found in samples of patients in mental healthcare settings or samples of patients suffering from psychosis. Additionally, studies were excluded if a measure of psychosis was not assessed or addressed.

### 2.3. Search strategy

We searched MEDLINE, PsycINFO, EMBASE, Web of Science, SocIndex and Cochrane Library up to June 8, 2020. The complete search strategy is available on PROSPERO. The search strategy combined terms relating to or describing the condition of NEET and severe mental disorder with database-specific filters and conducted using “AND/OR” operators. The search strategy combined the terms and keywords related to three clusters: youth, disengagement and psychosis. Reference

Figure 1. PRISMA diagram.



**Table 1. Characteristics of included studies**

	<b>Geographic location</b>	<b>Design</b>	<b>Participants</b>	<b>Setting</b>	<b>Recruitment</b>	<b>Aim</b>	<b>Inclusion criteria</b>	<b>Comparator</b>
Reissner, 2010	Essen, Germany	Cross sectional	Youth receiving unemployment benefit in the Vocational Service Centre Essen	On the grounds of the Vocational Services Centre Essen in an established outpatient unit of the Department of Child and Adolescent Psychiatry	Referral by case manager in the vocational service	Establish the prevalences of both DSM-IV, Axis-I and II disorders Examine the level of symptom severity, psychopathology and psychosocial functioning Assess somatic and mental health service use Identify differences between probands with and without comorbid PD	- Suffer from self-reported (to the case manager) or deduced mental problems - Aged 16 to 24,9 years	none

(Continued)

Table 1. (Continued)

	<b>Geographic location</b>	<b>Design</b>	<b>Participants</b>	<b>Setting</b>	<b>Recruitment</b>	<b>Aim</b>	<b>Inclusion criteria</b>	<b>Comparator</b>
Ramsdal, 2018	Harstad, Norway	Qualitative design combined with case-control study	Young adults who had dropped out of high school and are clients in the public welfare system (The Norwegian Labour and Welfare Administration, NLWA) 2-5 years after dropout.	The interviews were performed at the local university college.	A contact person in the NLWA, informed potential participants about the study and asked for permission to pass on their phone number so that the researchers could contact them and ask for their consent to participate.	To obtain the informants' own narratives regarding their mental health and the influence of any mental problems on their school completion or dropout from school. In addition, to diagnose any present mental disorders. Compare the informants' own narratives to their psychiatric diagnoses and thereby get a more comprehensive picture of their mental health challenges and the implications these challenges have for their school performances.	-Aged 18-25 years. -Dropped out of high school. -Had no documented health problems - Struggling to get back on track 2-5 years after school dropout.	College students aged 18-25 years who had struggled to finish high school.

**Table 2. Interviews and measure of psychosis in included studies**

	<b>Inter-views</b>	<b>Measure of psy- chosis</b>	<b>Inter- viewers</b>	<b>Number included in analysis</b>	<b>Age</b>	<b>Educ- ational level</b>	<b>Preval- ence of psy- chosis (n = / total, (%))</b>	<b>Risk of bias assessment / Instr- ument used</b>
Reissner, 2010	SCID I and SCID II interviews performed during four counselling sessions following diagnostic consensus meeting.	Fulfill DSM-IV diagnoses schizophrenia and other psychotic disorder	One psychologist with a master's degree and one adult senior psychiatrist. Appropriately trained to conduct the SCID I and SCID II	Eligible for inclusion: 229 Refused to participate: 15 Excluded after inclusion due to missing follow-up (did not complete diagnostic interview): 49 Included in the analysis: 165	16-24,9 years (Mean 21.4)	School degree: None = 71 (45.8%) Low / medium = 72 (46.5%) High = 12 (7.7%)	5/165 (3.0%)	Axis
Ramsdal, 2018	The short structured diagnostic interview Mini-International Neuropsychiatric Interview (M.I.N.I.). Screening for mental disorders	Fulfill criteria for diagnoses in the DSM-IV and ICD-10 diagnostic manuals as assessed with the instrument M.I.N.I. Among axis-I disorders "psychotic disorder" is described.	A trained clinical psychologist and has specialization in adult psychology.	Eligible for inclusion: 9 Drop-out group: 7 Student group: 7 Refused to participate: 2 Included in the analysis: 7 Drop-out group: 7 Student group: 7	18-25 years	Drop-out group: Dropped out of High-school. Student group: third year of college, completed high school	0/7 in the dropout group 0/7 in the student group	The New-Castle Ottawa Scale



lists of eligible studies and review articles were searched to identify studies that met inclusion criteria. Grey literature was sought by use of the internet resource Google Scholar.

The titles and abstracts of identified records were exported into the reference citation manager Endnote and imported into the data management software Covidence and duplicates were removed (Covidence systematic review software). Two reviewers carried out the title and abstract screening followed by full-text screening independently (LL, JBF/LSB). Disagreement over the eligibility of studies was resolved by consensus through discussion or consultation with a third reviewer where consensus was not reached.

**2.4. Data extraction and synthesis**

Authors were contacted in cases where required data were not reported to clarify if data meeting inclusion criteria could be supplied. In all, authors of 16 records were contacted and three authors replied to the query, and all were unable to provide additional data.

Two reviewers extracted data independently. A data extraction form based on the Cochrane Consumers and Communication Review Group’s data extraction template was used. The summary measures were not restricted and prevalence rates were used. Risk of bias in individual studies was assessed using the AXIS appraisal tool for cross-sectional studies (Downes et al., 2016) and The Newcastle–Castle Ottawa Scale for case–control studies (Wells et al.,). Due to the absence of data examining the strength of the relationship between NEET status and psychosis and heterogeneity in the included studies, a meta-analysis could not be performed. Accordingly, a narrative synthesis was provided.

**3. Results**

**3.1. Study selection**

A total of 6135 records were retrieved. 1402 duplicates were removed, and after title and abstract screening against inclusion and exclusion criteria, 183 records were full-text screened. Two studies fulfilled eligibility criteria for inclusion in the review; the PRISMA diagram is displayed in Figure 1.

**3.2. Description of included studies**

The two included studies were both conducted in western countries and published in 2010 and 2018, respectively.

Reissner et al. included 165 participants in a cross-sectional study design (Reissner et al., 2011). Ramsdal et al. used a qualitative and case–control design and included seven participants in both the case and the control group, with the control group consisting of college students (Ramsdal et al., 2018).

Study populations of the included studies of Reissner et al. and Ramsdal et al. were not explicitly termed NEETs, nevertheless fulfilled criterion as NEET populations with an age range of 16–25 and 18–25 years, respectively, and both studies recruited participants from clients in public welfare systems and dependent on welfare benefits. Additionally, Ramsdal et al. described the study

**Figure 2.** Newcastle-Ottawa quality assessment Scale (NOS) for case–control studies (Ramsdal et al. 2018).

Selection				Comparability			Exposure	
Definition of cases	Representativeness of cases	Selection of controls	Definition of controls	On geography	On other risk factors	Ascertainment of exposure	same methods for ascertainment for cases and controls	Non-response rate
0	0	0	0	One star *	0	0	One star *	0

population as “Long-term dropout from school and work” and states in the thesis of the first author that “None of them was currently employed in regular jobs or re-enrolled in regular high school programs” (Ramsdal, 2018). Reissner et al. likewise describes the study population as “failure in the transition periods from adolescence to adulthood and from school to work”. Reissner et al. recruited participants in a vocational centre and Ramsdal et al. in The Norwegian Labour and Welfare Administration.

The participants in Ramsdal et al. were neither in school nor in regular employment 2 to 5 years after dropout of high-school. Reissner et al. did not have a duration of disengagement as a criterion. The participants were on average 19 (SD 2.2) years old when first contacting the vocational service due to unemployment and had an average age of 21 (SD 2.1) years at participation in the study; see study characteristics in Table 1.

The included studies described mental health problems among disengaged young adults, with both studies investigating mental health problems by in-person interview using validated instruments screening for mental disorders according to DSM-IV/ICD-10 diagnostic manuals. Reissner et al. had psychiatric diagnoses as outcome measures, whereas the outcome in Ramsdal et al. was dropout among cases with mental disorders as exposure. Interviews were conducted by trained interviewers —psychologists or psychiatrists.

The diagnostic assessment in Reissner et al. was conducted through four sessions with the use of the instruments Structured Clinical Interviews for DSM-IV Disorders (SCID-I and SCID-II), with the focus of axis-I syndromes and axis-II personality disorders. The measure of psychosis was fulfilling DSM-IV diagnoses schizophrenia and other psychotic disorder according to SCID-I.

Ramsdal et al. investigated present mental disorder by using the screening tool Mini-International Neuropsychiatric Interview (M.I.N.I.) at one session described to account for about a 35-min interview. The measure of psychosis was assessed by screening questions for psychotic disorder according to the instrument.

### **3.3. Outcome of psychosis in the included studies**

In all, Reissner et al. reported psychosis by description of assessment of schizophrenia and other psychotic disorder among five participants (3%).

Ramsdal et al. did not report any participants to have psychosis, neither in the case group nor in the control group, see, Table 2.

### **3.4. Additional study findings**

Overall, both studies reported a high prevalence of mental disorders when assessed by the instruments used. Reissner et al. reported criteria fulfilled for mental disorders according to DSM-IV in 98% of the 165 included participants. Among these, an overweight of externalizing disorders was found with 58.2% of the disengaged young adults reported to meet diagnostic criteria for a personality disorder when assessed with SCID-II.

In Ramsdal et al. in all, 13 diagnoses were found present among the seven disengaged participants, with five of the disengaged participants fulfilling criteria for more than one axis-I mental disorder. Four of the seven interviewed disengaged young adults were described to report the mental health problems to play a significant part in the school dropout events.

**Figure 3.** Appraisal tool for cross-sectional studies (AXIS) (Reissner et al. 2010).

Reissner et al. 2010

Introduction

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- 1) Were the aims/objectives of the study clear? **Yes**

Methods

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- 2) Was the study design appropriate for the stated aim(s)? **Yes**  
3) Was the sample size justified? **Unclear** (Sample size calculation not stated)  
4) Was the target/reference population clearly defined? (Is it clear who the research was about?) **Yes**  
5) Was the sample frame taken from an appropriate population base so that it closely represented the target/reference population under investigation? **Yes**  
6) Was the selection process likely to select subjects/participants that were representative of the target/reference population under investigation? **No**  
7) Were measures undertaken to address and categorize non-responders? **Unclear** (No information or characteristics of the non-responders)  
8) Were the risk factor and outcome variables measured appropriate to the aims of the study? **Yes**  
9) Were the risk factor and outcome variables measured correctly using instruments/measurements that had been trialed, piloted or published previously? **Yes**  
10) Is it clear what was used to determine statistical significance and/or precision estimates? **Yes**  
11) Were the methods (including statistical methods) sufficiently described to enable them to be repeated? **Yes**  
12) Were the basic data adequately described? **Unclear** (No overview of the process of recruitment were described. Unclear if there was success in selecting a representative sample of the target population)

Results

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- 13) Does the response rate raise concerns about non-response bias? **Yes**  
14) If appropriate, was information about non-responders described? **No**  
15) Were the results internally consistent? **Yes**  
16) Were the results presented for all the analyses described in the methods? **Yes**

Discussion

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- 17) Were the authors' discussions and conclusions justified by the results? **Yes**  
18) Were the limitations of the study discussed? **Yes**

Other

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- 19) Were there any funding sources or conflicts of interest that may affect the authors' interpretation of the results? **No**  
20) Was ethical approval or consent of participants attained? **Yes**

(Low risk of bias: 1, 2, 4, 5, 8-11, 15-20; unclear risk of bias: 3, 7, 12; high risk of bias: 6, 13, 14)

### 3.5. Quality assessment

Assessment of risk of bias in individual studies showed a risk of selection bias in the included studies. One star was assigned to Ramsdal et al. in the exposure area and no stars in selection and comparability areas (Wells et al.,), see, Figure 2. In Reissner et al., there was an additional risk of information bias, as 49 persons were excluded after inclusion due to missing follow-up, see Figure 3.

### 4. Discussion

After a systematic literature search, only two studies were eligible for inclusion in our review. There was heterogeneity in designs and outcome measures in the included studies. Reissner et al. found the prevalence of schizophrenia and psychotic disorders among the 165 disengaged young adults recruited from a job counselling centre to be 3%. Ramsdal et al. did not identify psychotic disorder among participants investigated for mental disorders, neither in the study population of long-term school dropout young adults nor in the control group of college students. Both included studies pointed to mental health problems as central factors of being NEET.

The design of Ramsdal et al. was overall qualitative, and the case-control study had a small sample size not fit for statistical comparison (Ramsdal et al., 2018). As a result, no quantitative conclusions can be drawn from not finding psychosis among the NEET population in the study by Ramsdal et al. The prevalence of schizophrenia and psychotic disorders of 3% identified in the study of Reissner et al. is equivalent to the prevalence in community samples (Van Os et al., 2009;

Wittchen et al., 2011). Yet, Reissner et al. did not include a comparison group in the study, and the assessed mental health problems among the disengaged youth could not be compared to a non-NEET status counterpart.

Both included studies identified a difficulty of recruitment in the group of disengaged youth.

Ramsdal et al. recruited participants through a contact person at the Norwegian Labour and Welfare Administration, and due to no descriptions of the total sample of clients eligible for participation, it was unclear whether the group of disengaged young adults interviewed was representative to the population of clients in the service (Ramsdal, 2018).

Likewise, Reissner et al. recruited the NEET group within the public welfare system in a vocational service by referral from case managers. The case managers identified participants who they suspected to require mental health attention, which constituted a highly selected study population stated not to be representative of the total group of young adults seen in the vocational centre.

Taken together, recruitment of the study populations in the included studies depended on assessment by public welfare caseworkers. Hence, it cannot be ruled out that selection of participants by non-mental health professionals might influence the findings of mental health issues.

In both studies, the measure of psychosis was represented as part of interviews with broad diagnostic screening and was not the focus of either study. Reissner et al. identified an overweight of externalizing disorders, a distribution of mental disorders that cannot be substantiated from other studies investigating mental disorders among NEET youth. One explanation for the notable outcome could be the use of the SCID-II interview, which to our knowledge, has not been used in the literature as an instrument to explore mental health problems among NEET youth. Accordingly, there could be a methodological factor attributing to the differing results found in Reissner et al. when compared to other NEET population studies; the identification of a specific diagnostic group could be a result of the use of an instrument designed with this diagnostic focus (Michael, 1997).

The measure used in Ramsdal et al. to evaluate mental disorders was based on a brief structured instrument, which might not be suitable for the identification of symptoms of emerging psychosis (Nordgaard et al., 2012).

Methodological limitations in detecting psychosis by the instruments used in the included studies could have affected the findings in relation to our hypothesis. Nevertheless, disregarding the methodological considerations, the results were limited in the included studies as were the overall identified studies concerning the topic of psychosis among NEET youth, and the hypothesis of the presence of symptoms of psychosis if searching among the inactive youth outside mental healthcare setting could not be confirmed in the present study.

In the psychiatric research field of first-episode psychosis, high prevalence of NEET status among young adults experiencing first-episode psychosis is evident and well described (Cotton et al., 2017; Maraj et al., 2019; Turner et al., 2009). Hence, there seems to be a paradox in the evidence of the high prevalence of NEET status among help seekers in mental healthcare setting experiencing psychosis and the absence of literature describing the opposite directionality association within the NEET youth outside mental healthcare setting.

The majority of studies exploring mental health issues among NEET youth are population-based studies using acknowledged instruments adapted to be used in surveys as self-reports or using

structured interviews to screen for disorder groups, and the interviews are often carried out by non-clinician researchers (Baggio et al., 2015), Berry et al., 2019). This frame of research could be questioned in its ability to explore severe psychopathology as psychosis (Nordgaard et al., 2019; Stanghellini et al., 2012).

Consequently, there could be an overall methodological inability to identify symptoms of psychosis among community samples of the NEET population. This inability could explain the sparse literature describing severe mental disorders among NEETs.

Prevention and reintegration initiatives of the NEET group are of great societal interest (Eurofound, 2017), and therefore identification of causal explanations of NEET status has repeatedly been a topic of interest in the research field (Baggio et al., 2015; Fergusson et al., 2001). A causal discussion occurs both in unemployment and focused NEET literature (Scott et al., 2013). In longitudinal studies, NEET status in young adults is shown to be associated with mental disorder in childhood and adolescence, with the primary variables of mental disorders being common mental disorders, substance use and conduct disorder (Goldman-Mellor et al., 2016; Power et al., 2015; Rodwell et al., 2018). In addition, studies have found concurrent mental health problems of mood disorders and substance use disorder in NEET status young adults even when controlling for childhood and adolescent mental health problems (Gutierrez-Garcia et al., 2017) and for pre-existing mental health vulnerability (Goldman-Mellor et al., 2016; Sellstrom et al., 2011). Furthermore, investigation of the opposite causal direction has shown an increased risk of being admitted to hospital due to depression 1 year following registration as economically inactive young adult compared to the economically active young adults (Sellstrom et al., 2011). In summary, a bidirectional or multifactorial causal explanation seems to remain in the association of NEET and mental health problems (Goldman-Mellor et al., 2016). Nevertheless, mental health attention seems crucial to support the transition into work or further education in the NEET population.

The primary professionals in contact with a vulnerable group of young adults in need of mental health attention being case managers in vocational counselling services lead to the concern that young people, with the central problem of mental ill health, are met by case-workers with the focus of vocational support, unequipped to identify the mental illness among the NEET population. Integration of treatment and vocational rehabilitation among young adults with recognized severe mental disorders has shown effective in vocational recovery after a first-episode psychosis with the Individual Placement and Support (IPS) approach (Killackey et al., 2019; Nuechterlein et al., 2020). More studies have found evidence that there is a motivation for vocation among people experiencing first-episode psychosis (Rinaldi et al., 2010), even in societies characterized by generous welfare systems, as in Scandinavian countries, where the financial incentive might be limited (Christensen et al., 2019; Gammelgaard et al., 2017). Reissner et al. suggest the approach of “case-related feedback” to enhance insight of psychiatric perspective of individuals seen primarily in vocational services (Reissner et al., 2011), thereby using interdisciplinary integration alike the Individual Placement and Support approach.

A high proportion of NEET status in first-episode psychosis can be accounted for by the symptoms in the early phases of psychosis of functional deterioration with changes in engagement in the surroundings of the patient, ability to maintain social functioning and academic decline (Hafner et al., 1999; Larsen et al., 2004). The hardship in capturing young adults with psychosis among NEETs could be the discrete positive clinical symptomatology in the early phase of illness when social decline presides what is more obvious psychopathology in

psychosis (Bowman et al., 2020). Functional impairment in adolescents experiencing state 0–1a in the clinical staging model of risk states of mental disorders are seen to affect educational attainment and school dropout and is hypothesized to be linked to risk states of psychosis (Bowman et al., 2020). Likewise, identified elevated depressive score level in co-occurrence with NEET is suggested to be a risk factor for the emergence of serious mental health problems (Berry et al., 2019), and reporting anxiety and depression in the NEET population could be seen as important warning signs or as risk factors of psychosis (Hafner et al., 1999). Transition to psychosis in a high-risk sample has shown a significantly greater decline in social role function in the year prior to help-seeking, measured as performance and amount of support needed in one's specific role (i.e., school, work), compared to the young adults who did not undergo transition (Carrion et al., 2019). Additionally, NEET status has been identified as a predictor of transition to psychosis (Cross et al., 2017).

NEET as well as an interaction between unemployment and social isolation has been found to be associated with prolonged duration of untreated psychosis in first-episode psychosis (Iyer et al., 2018; Reininghaus et al., 2008; Turner et al., 2009). Not addressing symptoms of psychosis can have crucial consequences for the clinical course, with empirical evidence of symptom complexity and poor prognosis to be related to the duration of untreated psychosis (Marshall et al., 2005). Hence, early identification and treatment of psychosis are paramount (Scott et al., 2013).

Vague causal explanations and insufficient understanding of the psychopathological quality and severity of mental health problems among NEETs make focus for prevention and initiatives for reintegration difficult (Scott et al., 2013), and additionally, a dearth of research examining mental health outcomes in intervention studies of NEETs has been identified (Mawn et al., 2017).

#### **4.1. Strengths and limitations**

This systematic review has several strengths. We followed the PRISMA guidelines and we registered the protocol in PROSPERO when conducting this systematic review (Liberati et al., 2009). We conducted extensive searches of relevant databases. Two review authors, working independently, selected trials for inclusion and extracted data. Disagreements were resolved by discussion with team members. We assessed the risk of bias in included studies by using the AXIS appraisal tool for cross-sectional studies and The Newcastle–Ottawa Scale for case–control studies. As a result, we think our approach has led to the best possible gathering of relevant literature on the topic.

The limitations of the review was the limited number of studies found eligible for inclusion after the systematic literature search. The studies were heterogenic in design, and the data was not fit for conducting a meta-analysis. Accordingly, the results are based on a narrative synthesis. Recruitment of NEET young people for comprehensive investigation is challenging (Berry et al., 2019; Ramsdal et al., 2018; Russell, 2013). As a result, there was a risk of selection bias in both included studies, which was reported by the authors and could have consequences for the interpretation of the results.

In conclusion, evidence from first-episode psychosis literature in regards to a high prevalence of NEET status in this group adheres to the hypothesis of the presence of psychosis among NEET youth. Nevertheless, this assumption could not be confirmed by the existing literature. The evidence of social impairment in the illness trajectory of psychosis contrasts the absence in the literature field, which points to a research gap.

The existing evidence of mental health problems among the NEET population leads to a concern that caseworkers with the focus of vocational support are the primary professionals in contact with the disengaged youth and unequipped to identify untreated severe mental disorder.

Causal considerations point to a bidirectional association of NEET status and mental health problems, and Individual Placement and Support literature has shown evidence of an effect of integrative vocational rehabilitation in mental health care setting in first-episode psychosis.

Further research exploring unrecognized mental health needs with the focus of severe mental disorders as psychosis among the NEET population is needed. Intervention studies with an integrative approach of welfare benefit system and mental health care system will be of greatest importance to evolve initiatives of prevention and reintegration of the NEET population.

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#### Disclosure statement

No potential conflict of interest was reported by the author(s).

#### Availability of data and material

The complete search strategy is available on PROSPERO ID: CRD42020161689. The data retrieved from Covidence are available from corresponding author upon request.

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Not applicable.

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