2018 Studies in social security and health | 152

Pauliina Mattila-Holappa

Mental health and labour market participation among young adults

Studies in social security and health 152 | 2018

Pauliina Mattila-Holappa

Mental health and labour market participation among young adults

Author

Pauliina Mattila-Holappa, MA, Lic. (Psych.), Senior Specialist
Finnish Institute of Occupational Health
firstname.lastname@ttl.fi

The publications in this series have undergone a formal referee process.

Layout: Pekka Loiri

ISBN 978-952-284-044-8 (print)
ISBN 978-952-284-045-5 (pdf)

ISSN-L 1238-5050
ISSN 1238-5050 (print)
ISSN 2323-7724 (pdf)

URI http://urn.fi/URN:NBN:fi-fe2018082934286

Publisher: Kela, Helsinki, 2018

Printed by Erweko

Painotuote
4041 0032

ECOFILM

Abstract

Mattila-Holappa P. **Mental health and labour market participation among young adults.** Helsinki: The Social Insurance Institution of Finland, Studies in social security and health 152, 2018. 112 pp. ISBN 978-952-284-044-8 (print), 978-952-284-045-5 (pdf).

Mental disorders are the leading cause of work disability among young adults. This study examined the background of young adults who were granted temporary work disability pension due to mental disorders in Finland, their clinical profile, the interventions targeted at them, and employment outcomes over five years. The data comprised people aged 18–34 (n = 1,163) who were granted a fixed-term work disability pension in 2008 due to a mental disorder (ICD-10 codes F10–69, F80–99) by an occupational pension institute. The data included patients' pension applications and attached medical certifications, which were linked to employment data from the Finnish Centre for Pensions. The most common diagnoses were depressive mood disorders (39%), schizophrenia, schizotypal and delusional disorders (34%), and mania or bipolar disorder (14%). Half of the young adults were attached to the labour market or education prior to the granted pension. Three clinical profiles were identified: 'Childhood (including adolescence) adversity', associated with depressive disorders; 'Comorbidity', associated with bipolar disorder; and 'Undefined', associated with psychotic disorders. Half of the non-student young adults had received work-oriented interventions or had them in their treatment and rehabilitation plan. Forty per cent had received psychotherapy or had a plan for it. A total of 22% of the sample were employed at the end of the 5.6-year follow-up, whereas 48% had been employed at some time during this period. Having planned psychotherapeutic intervention or rehabilitative courses and training at baseline was associated with quicker entry into the labour market. Having both planned psychotherapeutic and work-oriented interventions was associated with being employed at the end of the follow-up. Both psychotherapy and work-oriented interventions are likely to be beneficial for the future employment of young adults on disability pension.

Keywords: adolescents, young adults, mental health, mental disorders, work ability, labor market, access to employment, incapacity for work, rehabilitation subsidy, disability pensions, depression, schizophrenia, psychotic disorders, mania, manic-depressive illness, psychotherapy, rehabilitation

Tiivistelmä

Mattila-Holappa P. **Nuorten aikuisten mielenterveys ja työmarkkinoille osallistuminen.** Helsinki: Kela, Sosiaali- ja terveysturvan tutkimuksia 152, 2018. 112 s. ISBN 978-952-284-044-8 (nid.), 978-952-284-045-5 (pdf).

Mielenterveyden häiriöt ovat yleisin syy nuorten aikuisten työkyvyttömyyteen. Tässä tutkimuksessa selvitettiin mielenterveyden häiriöiden vuoksi määräaikaisella työkyvyttömyyseläkkeellä eli kuntoutustuella olevien nuorten aikuisten taustaa, kliinistä kuvaa, hoitoa ja kuntoutusta sekä työhön paluun ennustetta. Tutkimusjoukko koostui 18–34-vuotiaista henkilöistä, joilla oli vuonna 2008 alkanut työeläkelaitoksen myöntämä määräaikainen työkyvyttömyyseläke mielenterveyden häiriön (F10–F69 ja F80–F99) perusteella (n = 1 163). Työkyvyttömyyseläkehakemuksen ja liitteenä olevien lääkärintodistusten tiedot yhdistettiin Eläketurvakeskuksen rekisterin tietoihin ansaintapäivistä viiden vuoden seurannan aikana. Yleisimmät syyt työkyvyttömyyteen olivat masennushäiriö (39 %), skitsofrenia tai muu psykoosi (34 %) ja mania tai kaksisuuntainen mielialahäiriö (14 %). Vain puolet oli kiinnittynyt työelämään tai opiskeluun ennen eläkettä. Tutkimusjoukossa tunnistettiin kolme alaryhmää: ensimmäistä luonnehtivat kuormittavat tapahtumat lapsuuden ja nuoruuden aikana ja masennusdiagnoosi, kun taas toista useat samanaikaiset mielenterveysdiagnoosit ja kaksisuuntainen mielialahäiriö. Kolmannessa ryhmässä psykoosidiagnoosiin liittyi taustatietojen niukkuus lausunnoissa. Puolet niistä, jotka eivät olleet opiskelijoita, oli osallistunut työelämään ohjaaviin interventioihin tai heille oli tehty suunnitelma interventiosta, ja 40 % oli osallistunut psykoterapiaan tai heillä oli psykoterapiasuunnitelma. Yhteensä 48 % oli jossain vaiheessa seurantaa työssä, mutta seurannan päättyessä työssä oli vain 22 %. Nopeammin työllistyivät ne, joille oli tehty psykoterapiasuunnitelma tai suunnitelma työhön paluuta tukevasta kurssista tai valmennuksesta. Seurannan lopussa työssä olivat useimmin ne, joille oli tehty suunnitelma sekä psykoterapiasta että työhön paluuta tukevasta toiminnasta. Mielenterveyden häiriöiden vuoksi työkyvyttömien nuorten pääsyä työelämään tulisi tukea sekä psykoterapian että työhön ohjaavan kuntoutuksen keinoin.

Avainsanat: nuoret, nuoret aikuiset, mielenterveys, mielenterveyshäiriöt, työkyky, työmarkkinat, työllistyminen, työkyvyttömyys, kuntoutustuki, työkyvyttömyyseläkkeet, masennus, skitsofrenia, psykoosit, mania, kaksisuuntainen mielialahäiriö, psykoterapia, kuntoutus

Sammandrag

Mattila-Holappa P. **Unga vuxnas psykiska hälsa och deltagande i arbetsmarknaden.** Helsingfors: FPA, Social trygghet och hälsa, undersökningar 152, 2018. 112 s. ISBN 978-952-284-044-8 (hft.), 978-952-284-045-5 (pdf).

Psykiska störningar är den vanligaste orsaken till att unga vuxna är arbetsoförmögna. I den här studien utreddes bakgrunden, den kliniska bilden, behandlingen och rehabiliteringen samt prognosen för återgång i arbete hos unga vuxna som på grund av psykiska störningar beviljats sjukpension för viss tid dvs. rehabiliteringsstöd. Deltagarna i studien bestod av personer i åldern 18–34, som på grund av psykiska störningar (F10–F69 och F80–F99 (n = 1 163) under 2008 hade börjat få sjukpension för viss tid som beviljats av en arbetspensionsanstalt. Uppgifterna i ansökan om sjukpension och de bifogade läkarintygen samkördes med uppgifterna i Pensionsskyddscentralens intjäningsregister under en uppföljningsperiod på fem år. De vanligaste orsakerna till arbetsoförmågan var depressionsstörning (39 %), schizofreni eller någon annan psykos (34 %) och mani eller bipolär sjukdom (14 %). Endast hälften var etablerade i arbetslivet eller engagerade i studier innan de beviljades pension. Bland deltagarna i studien kunde man identifiera tre undergrupper: den första karakteriserades av belastande händelser i barndomen och ungdomsåren och depressionsdiagnoser medan den andra karakteriserades av flera samtidiga psykiska diagnoser och bipolär sjukdom. I den tredje gruppen förekom endast sparsamt med bakgrundsuppgifter i utlåtandena i anslutning till psykosdiagnoserna. Hälften av dem som inte var studerande hade deltagit i arbetslivsinriktad intervention eller så hade en interventionsplan utarbetats för dem. 40 % hade fått psykoterapi eller hade en plan för psykoterapi. Sammanlagt 48 % var i arbete under något skede av uppföljningen men endast 22 % var i arbete då uppföljningen avslutades. Snabbast blev de sysselsatta för vilka man hade gjort upp en plan för psykoterapi eller en plan för en kurs eller träning som stödde återgången i arbete. Vid slutet av uppföljningsperioden var de av deltagarna oftast i arbete för vilka det hade gjorts upp en plan både för psykoterapi och för verksamhet som stödde återgången i arbete. Möjligheterna att komma ut i arbetslivet för unga personer som är arbetsoförmögna på grund av psykiska störningar borde stödjas både genom psykoterapi och genom arbetsinriktad rehabilitering.

Nyckelord: ungdomar, yngre vuxna, mental hälsa, mentala störningar, arbetsförmåga, arbetsmarknaden, sysselsättning, arbetsoförmåga, rehabiliteringsstöd, invalidpensioner, depression, schizofreni, psykoser, mani, bipolär sjukdom, psykoterapi, rehabilitering

Acknowledgements

I wish to thank all the parties who made this dissertation, the most inspiring task of my working career so far, possible. This study was carried out at the Finnish Institute of Occupational Health (FIOH) as a part of a three-year research project 'Mental health, work ability and labour market participation among young adults'. The study was funded by The Social Insurance Institution of Finland (Kela) and FIOH. The Finnish Work Environment Fund supported the finalization of the thesis. I also thank the work pension institutes that participated in the study, and the steering group of the study.

I am most grateful to my supervisors, Professor Marianna Virtanen and Docent Kirsi Ahola for allowing me to be part of their research group and for their intensive support throughout the process. It has been a privilege to work with you. I also thank my supervisor at the University of Helsinki, Associate Professor Markus Jokela from the University of Helsinki for his help.

I wish to express my appreciation to the two reviewers of this thesis, Professor Riittakerttu Kaltiala-Heino from the University of Tampere, and Professor Eila Laukkanen from the University of Eastern Finland, who provided insightful comments on the manuscript. Dr Matti Joensuu, Docent Jenni Ervasti, MSc Aki Koskinen, Professor Jussi Vahtera, Professor Mika Kivimäki, Docent Teija Kivekäs, and Docent Katinka Tuisku were my highly-qualified, resourceful co-authors. Special thanks to Jenni and Matti for our scientific, and non-scientific, discussions. I also thank Marjatta Kumpulainen for participating in the data collection, Alice Lehtinen for editing the language of the manuscript, and Jaana Ahlstedt, Tarja Hyvärinen, Leena Rautjärvi, and Maini Tulokas at Kela for their help with the overall editing.

My warmest thanks go to my present and former and supervisors at FIOH, especially Dr Salla Toppinen-Tanner, Dr Krista Pahkin, and Professor Anna-Liisa Elo. I extend my gratitude to all my colleagues at FIOH, it is a joy to work among you.

I am grateful to my parents for giving me a good start in life and in my studies. I want to thank my relatives and in-laws for practical help which has enabled the resources and time for writing. For promoting my mental well-being, I thank my friends, and my flow gymnastics team. Finally, I thank my husband Kimmo for sharing my life and my interest in social phenomena. This thesis is dedicated to our two children, whose all-embracing enthusiasm for everything life offers brings me continuous delight.

Helsinki, August 2018

Pauliina Mattila-Holappa

Contents

List of original publications

This thesis is based on the following original publications:

I **Mattila-Holappa P, Joensuu M, Ahola K, Vahtera J, Virtanen M.** Attachment to employment and education before work disability pension due to a mental disorder among young adults. BMC Psychiatry 2016; 16: 143. DOI: 10.1186/s12888-016-0854-1.

II **Joensuu M, Mattila-Holappa P, Ahola K, Ervasti J, Kivimäki M, Kivekäs T, Koskinen A, Vahtera J, Virtanen M.** Clustering of adversity in young adults on disability pension due to mental disorders. A latent class analysis. Social Psychiatry and Psychiatric Epidemiology 2016; 51 (2): 281–287. DOI: 10.1007/s00127-015-1123-1.

III **Mattila-Holappa P, Joensuu M, Ahola K, Kivekäs T, Kivimäki M, Koskinen A, Virtanen M.** Psychotherapeutic and vocational interventions among young adults with work disability due to mental disorders in Finland. Scandinavian Journal of Occupational Therapy 2018; 25: (3): 213–222. DOI: 10.1080/11038128.2017.1375008.

IV **Mattila-Holappa P, Joensuu M, Ahola K, Koskinen A, Tuisku K, Ervasti J, Virtanen M.** Psychotherapeutic and work-oriented interventions. Employment outcomes among young adults with work disability due to a mental disorder. International Journal of Mental Health Systems 2016; 10: 68. DOI: 10.1186/s13033-016-0101-7.

The publications are referred to in the text by their Roman numerals and reprinted (print edition) by permission of the copyright holders.

Abbreviations

AIC	Akaike information criterion
BIC	Bayesian information criterion
CAIC	Consistent Akaike information criterion
CI	Confidence interval
ECT	Electroconvulsive therapy
ETK	Finnish Centre for Pensions (Eläketurvakeskus)
EVA	Finnish Business and Policy Forum (Elinkeinoelämän valtuuskunta)
GAS	Goal attainment scaling
HR	Hazard ratio
Kela	Social Insurance Institution of Finland (Kela)
PR	Prevalence ratio
ICD-10	International classification of diseases, tenth revision
LCA	Latent class analysis
IPS	Individual placement and support
OECD	Organisation for Economic Co-operation and Development
RTW	Return to work
rTMS	Transcranial magnetic stimulation
STM	Ministry of Social Affairs and Health (Sosiaali- ja terveysministeriö)
TELA	Finnish Pension Alliance (Työeläkevakuuttajat)
TEM	Ministry of Economic Affairs and Employment (Työ- ja elinkeino-ministeriö)
THL	National Institute for Health and Welfare (Terveyden ja hyvinvoinnin laitos)
VNK	Prime Minister's Office (Valtioneuvoston kanslia)
WHO	World Health Organization

1 Introduction

The transition from adolescence to young adulthood has been described as the most basic phase of change after early childhood. This stage of development includes consolidating identity, vocational choices and studies, engaging in relationships, and entering the labour market. (Jessor et al. 1994; Viner et al. 2012.)

Compared to those of older workers, the labour markets for young people are characterized by uncertainty and temporary work contracts. Youth unemployment is a serious problem across Europe (Statista 2017). Work life opportunities for young people are greatly affected by macro-economic changes, e.g. periods of recession or economic growth, as well as by employment policies and interventions targeted at young adults to support employment (Lähteenmaa et al. 2013; Virtanen et al. 2016; Vancea and Utzet 2017).

Unemployment and working in precarious conditions make young people vulnerable to health problems (Vancea and Utzet 2017). Educational pressures, especially in a context with poor employment possibilities, are risk factors of poor mental health (Collishaw et al. 2004). Furthermore, high unemployment and growing professional requirements threaten work opportunities, especially among vulnerable populations such as young adults with mental disorders.

Mental disorders are the leading cause of work disability among young adults across Europe (Mykletun et al. 2006; Whiteford et al. 2010; Gore et al. 2011; Kaltenbrunner Bernitz et al. 2013). During the past ten years, the number of new work disability pensions per year due to mental disorders among people under 35 has increased by 30% in Finland. However, little is known on the background of these young adults who are granted work disability pension due to mental disorders, on the treatment and interventions targeted at them to help them enter or return to the labour market, or on the employment outcomes of these interventions.

1.1 Mental health and mental disorders

1.1.1 Definitions of mental health and mental disorders

The World Health Organization (WHO) defines mental health as a "state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (WHO 2014).

Disturbances of mental health are defined as mental disorders, which comprise a broad range of problems with different symptoms. However, they are generally characterized by "some combination of abnormal thoughts, emotions, behaviour and relationships with others" (WHO 2017). Psychiatric disability refers to an individual's

inability to live independently, attend school, daily life, or to work (Clinical guideline 2017).

Mental disorders, as well as somatic illnesses, are classified on the basis of the International Classification of Diseases (ICD-10), which is used as a diagnostic tool. Mental disorders are represented by the diagnostic codes F01–F99. Table 1 presents the classes of mental, behavioural and neurodevelopmental disorders. (WHO 1993.)

The aetiology of mental disorders is multifactorial and includes biological, genetic, social, and psychological factors (Patel 2007). Mental disorders are associated with a variety of functional deficits, including cognitive and social impairments (Airaksinen et al. 2006; Trivedi and Greer 2014). However, the severity of these deficits varies greatly according to the disorder and the individual. Cognitive impairments tend to be the most severe in psychotic disorders (Bilder et al. 2000).

Based on the Health 2000 and Health 2011 studies in Finland, the 12-month prevalence of depression in the adult population was 6.5% in 2000 (Pirkola et al. 2005), and 7–10% in 2011 (Markkula and Suvisaari 2017). The same study found the 12-month prevalence of neurotic, stress-related and somatoform disorders to be 4% in 2000 (Pirkola et al. 2005). For more rare disorders, the prevalence was expressed as lifetime prevalence, being 0.2% for bipolar disorder. The lifetime prevalence for all psychotic disorders was 3.5%, and for schizophrenia it was 0.5–1.5%. (Perälä et al. 2007.)

Table 1. Mental, behavioural and neurodevelopmental disorders according to ICD-10 classification.

Mental, behavioural and neurodevelopmental disorders F01–F99	
F01–F09	Organic, including symptomatic, mental disorders
F10–F19	Mental and behavioural disorders due to psychoactive substance use
F20–F29	Schizophrenia, schizotypal and delusional disorders
F30–F39	Mood [affective] disorders
F40–F48	Neurotic, stress-related and somatoform disorders
F50–F59	Behavioural syndromes associated with physiological disturbances and physical factors
F60–F69	Disorders of adult personality and behaviour
F70–F79	Mental retardation
F80–F89	Disorders of psychological development
F90–F98	Behavioural and emotional disorders with onset usually occurring in childhood and adolescence
F99–F99	Unspecified mental disorders

Tuisku et al. (2015) classified the functional deficits in mental disorders into four classes: 1) structural deficits, which include for example cognitive deficits associated with psychiatric disorders and neuropsychiatric vulnerability, 2) immediate symptoms of illness, for example, low initiative in depressive disorders, 3) secondary symptoms and adverse coping efforts, for example, withdrawal from social contacts, and 4) adverse sick role, for example, secondary gains associated with the illness.

1.1.2 Mental disorders during adolescence and young adulthood

In a population-based Finnish study of people aged 19–34, the prevalence of mental disorders was 15%, and the lifetime prevalence 40%. The most common disorders were depressive disorders (18%), followed by substance abuse or dependence (14%) and anxiety disorders (13%). (Suvisaari et al. 2009.) In a register study on Finnish people born in 1987, 17% of men and 24% of women had a record of psychiatric care or psychotropic medication in their health registers by the age of 21. Altogether 13% of the cohort had been diagnosed with a psychiatric disorder at that time. The most common diagnostic classes were mood disorders and neurotic, stress-related or somatoform disorders. (Paananen et al. 2012; Paananen and Gissler 2012.) Antidepressants were the most often used (13%) group of medicines among the cohort.

Genome, environment and plasticity of the brain all have an effect on individual adaptation and vulnerability (Paunio 2011). The incidence and prevalence of psychiatric disorders increases during adolescence due to the vulnerability caused by, for example, developmental changes in brain structure and function, changes related to hormonal function, and development tasks becoming independent from one's parents. Substance use, including cannabis use in adolescence is associated with later psychiatric disorders. (Rutter et al. 2006; Paus et al. 2008; French et al. 2015.) Problems in social relationships at school and low perceived social support have increased the risk of adolescent depression in Finnish samples (Kaltiala-Heino et al. 1999; Kaltiala-Heino et al. 2010; Väänänen et al. 2014). Some mental disorders during adolescence are transient (Patton et al. 2014) or relatively mild (Kessler et al. 2012) and can be helped by brief interventions (Laukkanen et al. 2010), whereas others persist into adulthood or predict later mental disorders (Fergusson et al. 2002 and 2007; Kim-Cohen et al. 2003; Roza et al. 2003; Eyre and Thapar 2014).

The incidence of mental and substance disorders before adulthood form a risk in relation to later educational underachievement, dropping out of school, lower economic standards, unemployment, and early parenthood (Fergusson et. al. 2002; Gibb et al. 2010). However, familial (e.g. parental educational achievement), social (e.g. deviant peer involvement) and personal (e.g. neurotism) factors, which are connected to early depression, may have an even more significant effect on studies and later labour market position than the disorder itself (Fergusson et al. 2002).

The effects of mental disorders may be particularly detrimental during young adulthood, since this period includes developmental tasks of completing education and entering the labour market (Suvisaari et al. 2009), which have far-reaching consequences for means of making a living. However, young adults seem to receive less psychiatric treatment than adolescents, and the need for treatment in this age group is likely to be unmet (Copeland et al. 2015).

1.1.3 Treatment of mental disorders

The treatment of mental disorders may include psychosocial treatments, including individual and group psychotherapy, medication, biological treatments, or a combination of these. Psychiatric hospital treatment may be offered in severe cases and when other treatment possibilities prove inadequate, when adjusting medication needs close monitoring, or when there is a danger of self-harm. (Current care guidelines 2017a and b.) Electroconvulsive therapy (ECT) as well as transcranial magnetic stimulation (rTMS) are also used, mainly in the treatment of medication resistant depression (Isometsä 2014; Isometsä and Koponen 2014).

Individual psychotherapeutic interventions have shown to be effective in a wide range of mental disorders. Finnish treatment guidelines recommend psychotherapy as treatment for depression, and cognitive-behavioural therapy as treatment of bipolar disorder and psychotic disorders (Current care guidelines 2017a, b and c). The results of psychotherapeutic interventions have also been encouraging in the treatment of mental disorders among young adults (Aaltonen and Lind 2008; Lindgren et al. 2010; Piet et al. 2010). Return to work (RTW) may be seen as one of the outcomes of successful psychiatric treatment; however, little is known of the effects of psychotherapy on employment outcomes. A previous study (Aaltonen and Lind 2008) showed psychotherapies as effective in maintaining employment among Finnish psychiatric patients (with a mean age of 33) without work disability at baseline. It has been evaluated that among young people, mental disorders are underdiagnosed and mental health service needs are unmet even in high-income countries such as Finland (Patel 2007; Suvisaari et al. 2009; Kasteenpohja et al. 2015; Kasteenpohja et al. 2016).

1.2 Work ability

1.2.1 Definitions of work ability and work disability

There is no consensus on the concept of work ability or work disability, and the issue can be examined from several perspectives (Lederer et al. 2014). The perspectives of work ability and work disability may be clinical, legal or academic, and the need to define work ability may rise from the need to classify, understand, compensate, or measure it. The classical and historically the first biomedical model of work disability sees work disability "as a condition related to pain and impairment", and work ability as the absence of illness or impairment. In the context of work ability evaluation, the focus has been on the relationship between the individual factors (e.g. health)

and the demands of work. The multifactorial model of work ability sees work ability as a dynamic, relational concept in which the different areas affect each other, and which may change during the life course. (Lederer et al. 2014; Kerätär 2016.) Current research on occupational epidemiology supports the multifactorial model of work ability and work disability and shows that the relationship between physical dysfunction and work disability is not straightforward; work ability is not completely defined by impairment (Lederer et al. 2014).

Lederer et al. (2014) reviewed the scientific articles on work ability and summarized the dimensions of work ability as including person-related factors, the demands of work, insurance systems, healthcare systems, community, and macro-infrastructures and societal factors. The ideas of current return-to-work research are in line with the multidimensional model of work ability, and state that to support work ability, actions should be targeted at both the individual and the workplace, as well as at other circumstances of the individual (Kerätär 2016).

The definition of work disability plays a critical role in determining whether an individual is work disabled, whether they will be granted monetary compensation for work disability, or whether they are eligible for vocational rehabilitation. This perspective may be considered medical-legal. From this perspective, the objective proof of impairment plays a central role. (Lederer et al. 2014.)

1.2.2 Work disability due to mental disorders

Depressive, as well as neurotic, stress-related and somatoform disorders, together with musculoskeletal disorders, are the main reasons for premature exit from the labour market in Finland (Polvinen et al. 2014; Rahman et al. 2017). In 2015, one out of four of the days of sickness absence compensated by Kela was due to mental disorders (Kela 2016). In 2016, 152,900 people received work disability pension from the occupational pension system. Of these pensions, 42% were due to mental disorders (Statistics Finland 2017). Of the new work disability pensions from the occupational pension system, 28% were granted due to mental disorders in 2015 (TELA 2015). The role of mental disorders in sickness absences and work disability pensions has been similar across Europe. Thus, mental ill-health is a key issue for health, social and labour market policies in OECD countries. (de Vries et al. 2017.)

1.2.3 Predictors of work disability due to mental disorders

In epidemiological research, work disability due to mental disorders, expressed as sickness absences and work disability pension, has been associated with, for example, lower socioeconomic status, unemployment, and accumulation of adverse childhood experiences and alcohol abuse (Upmark et al. 1999a, 1999b and 2001; Upmark and Thundal 2002; Harkonmäki et al. 2007; Laaksonen et al. 2010; Sidorchuk et al. 2012; Björkenstam et al. 2017). Socioeconomic status, expressed as low education, has

shown to associate with a high risk of both sickness absences (Sumanen et al. 2016) and work disability due to depressive disorders, particularly among young employees (Ervasti et al. 2017).

The role of psychosocial factors at work, such as job strain, effort-reward imbalance and problems in social relationships, as predictors of common mental disorders is well known (Harvey et al. 2017; Madsen et al. 2017), and research of their contribution to work disability has accumulated over the past decade. Low control and strain have shown to contribute to disability retirement, and limited evidence exists on the contribution of downsizing, organizational change, lack of employee training, repetitive work tasks, and effort-reward imbalance to work disability retirement (Knardahl et al. 2017).

1.2.4 Work disability due to mental disorders among young adults

In 2015, 2,289 people under the age of 35 (Figure 1) were granted work disability pension due to a mental disorder in Finland. This number includes both fixed-term pensions and permanent pensions, the majority being fixed-term. The number of disability pensions due to mental disorders among people under 35 has increased 31.5% in the past ten years. (ETK 2017a.)

Figure 1. Incidence of work disability pensions due to a mental disorder among young adults (aged 18–35) in Finland 2005–2015. Pensions due to mental retardation are excluded.

Source: ETK 2017a.

Mental disorders are also the leading cause of work disability among young adults internationally (Mykletun et al. 2006; Whiteford et al. 2010; Gore et al. 2011; Kaltenbrunner Bernitz et al. 2013). A Swedish study (Kaltenbrunner Bernitz et al. 2013) investigated work disability among people aged under 30 in seven European countries (Sweden, Norway, Denmark, Iceland, the Netherlands, Great Britain and Finland) and found that during 1998–2011, the proportion of young people who were granted work disability pension due to mental disorders had increased in all the examined countries.

1.2.5 Epidemiological evidence on return to the labour market

Empirical evidence underlines the multifaceted nature of return to work after absence due to a mental disorder (Blank et al. 2008; Lagerveld et al. 2010; Lagerveld and Houtman 2017). In addition to clinical factors and recovery from the illness, several other factors also contribute to the return to work. The factors associated with return to work after a mental-health-related episode of absence include clinical factors such as the severity of the disorder; the presence of comorbid somatic disorders; and socio-economic factors such as unemployment, low education, and temporary employment (Blank et al. 2008; Lagerveld et al. 2010; Virtanen et al. 2011; Hiske et al. 2012; Ervasti et al. 2013 and 2014). Furthermore, personal factors and self-evaluation of one's functional capacity have also been found to have an effect (Blank et al. 2008) on return to work.

Most studies of return-to-work interventions have been conducted among middle-aged employees with a permanent job contract, and mostly with a stable history of employment before work disability. Lagerveld and Houtman (2017) summarized that the effective elements of return-to-work interventions (e.g. Blonk et al. 2006; Lagerveld et al. 2012; Noordik et al. 2013) include cognitive-behavioural elements with a focus on work, a tailored return-to-work plan, and gradual, early return to work. The main problem in unsuccessful interventions was that they were not connected enough to the actual workplace and the work itself. Johansson et al. (2006) showed that the number of possible work accommodations positively affects return to work after a period of absence due to a mental disorder. In Finland, 'vocational rehabilitation', which can be funded by pension institutes for example, and which is executed through close contact with workplaces, has been shown to contribute to successful return to work (Laaksonen et al. 2015).

A recent Cochrane review on interventions for obtaining and maintaining employment among adults with severe mental disorders showed that supported employment was the most effective intervention, while pre-vocational training was more effective than psychiatric care only (Suijkerbuijk et al. 2017). A previous Cochrane review by Crowther et al. (2001) found little evidence that interventions aiming to prepare participants for employment, but which had no close contact with the workplace, were effective.

1.2.6 Return to labour market of young adults with work disability due to mental disorders

Work disability pensions for young adults in Finland are most often granted as fixed-term ('rehabilitation allowance'). It is expected that after treatment and rehabilitation, the rehabilitee will be able to return to work. However, a previous study showed that return to work after a fixed-term work disability pension is rare: only one out of four of all people who were granted a fixed-term work disability pension returned to work within a four-year follow-up. Return to work was even rarer among those who were granted a fixed-term work disability pension due to a mental disorder (18%), than among those who received the benefit due to a musculoskeletal disorder (33%). However, return to work after a fixed-term work disability pension is more likely among young people in all diagnostic classes. (Laaksonen and Gould 2015.)

Return-to-work studies have identified cognitive-behavioural elements with a focus on work, tailored return-to-work plan, and gradual, early return to work as successful RTW interventions, rather than on more general interventions without focus on work (Lagerveld and Houtman 2017). Pomaki (2017) emphasizes that workplace accommodations and support from senior management may significantly promote return to work after absence due to a mental disorder. As young adults who are disabled due to mental disorders do not necessarily have a stable history of employment or a current work contract, arranging contact with the workplace requires special effort. Individual Placement and Support (IPS) programmes, in which work begins directly in competitive employment, have shown to also contribute to competitive employment among young adults with severe disorders and no job contracts (Bond et al. 2015 and 2016). Otherwise, evidence of effective interventions contributing to employment among young adults with mental disorders is scarce.

1.3 Young adulthood: theories and models

1.3.1 Developmental tasks of young adulthood

The transition to young adulthood has been described as the most basic phase of change after early childhood (Viner et al. 2012). This stage of development includes consolidating one's identity, vocational choices and studies, engaging in relationships, becoming responsible for one's own finances, and possibly having children (Arnett 2000). Unlike adolescence, young adulthood lacks clear biomarkers. This stage of life is instead characterized by critical life choices, including decisions about advanced education, beginning a career and entering the labour market, and finding a partner. These decisions often result in major changes in later daily life. (Jessor et al. 1994.) The resources for making these choices are built during the earlier stages of a person's development.

Erik Erikson's (1950, ref. Salkind 2004) psychosocial theory of development had a significant impact on the study of development, because, as the first theory of human development, it covered the whole life span. Erikson stated that psychosocial devel-

opment takes place through interaction between maturational processes or biological needs, and the societal demands of everyday life. Erikson saw that maturation is indeed important in the onset of developmental phases, but that societal demands are present in every phase, and have an even greater influence on development.

Erikson defined eight stages of development that an individual should complete from infancy to adulthood. Each stage includes a conflict that an individual must solve. The conflicts and corresponding ages are: autonomy vs. shame and doubt (early childhood), initiative vs. guilt (2–4 years), industry vs. inferiority (5–12 years), identity vs. role confusion (13–19 years), intimacy vs. isolation (20–39 years), generativity vs. stagnation (40–64 years), and ego integrity vs. despair (65 and over).

According to Erikson's theory of development, young adulthood is characterized by the 'intimacy vs. isolation' conflict, and the development task for the individual is to create intimate relationships, e.g. marriage or close friendships (Salkind 2004). However, possible developmental problems in young adulthood are not necessarily only linked to the current developmental task; they may also be due to incomplete solutions to development tasks during previous stages of development.

Twenty-first century theories have challenged the traditional views of the developmental tasks of young adulthood (Arnett 2000; Billari and Liefbroer 2010). Becoming an adult does not necessarily happen as a series of events in a certain order, e.g. leaving home, marriage, having children. Instead, the process can be late, protracted and complex. Many of the events happen late in young adulthood, and the timespan between different events (e.g. leaving home and starting a family) may be long. Furthermore, many 'events' occur during young adulthood, and some of them are repetitive. (Billari and Liefbroer 2010.) Both positive and negative consequences have been associated with this prolonged phase between youth and adulthood. Freedom from role obligations is considered a positive aspect, whereas absence of role expectations may lead to uncertainty and difficulties in finding 'one's place' in society (Arnett 2007).

1.3.2 The life course perspective

The life course perspective is an interdisciplinary framework in the research of health, human development, and ageing. This framework aims to integrate biological and social risk processes. Life course epidemiology is interested in socially patterned exposures during the early years of development and adolescence, and in how these influence adult life, the risks of diseases and disorders, and socioeconomic position. (Kuh et al. 2003.)

The key principles of life course research may be summarized as follows: a) human development is a lifelong process, b) individuals construct their own life course through the choices they make within the constraints of history and social circumstances, c) the life course of individuals is shaped by the historical times and places

they experience, d) the developmental antecedents and consequences of life transitions vary according to their occurrence and timing in an individual's life, and e) lives are lived interdependently. (Amick et al. 2016.) Amick et al. defined the role of health in labour market research using the life course perspective as a determinant and a resource or capability that shapes work life trajectories. Exposures, with different time points, duration, intensity, and context influence future health and labour market outcomes.

1.3.3 Role of adversities during development: theoretical models

Previous research has shown that adverse circumstances or life events during childhood affect later mental health (Turner 1995; Hertzman and Power 2003). Theoretically, the circumstances during childhood may have a link to adults' (mental) health status in at least three ways. First, the early environmental factors may be seen as latent factors, which have an influence on later health regardless of later life circumstances. Second, the early circumstances may be seen as pathway factors, which set the individual on a certain path of life. Third, the accumulation of adverse events may be seen as the critical risk factor.

The latent effects that influence the whole life span may be both biological (such as low birth weight) or related to circumstances at critical periods of development.The idea of latent effects comes close to the theory of pathway effects, in which certain events or circumstances set individuals on a certain path in life. For example, stimulation in early childhood affects cognitive readiness, which in turn contributes to success at school. Interventions received during sensitive periods of development may also be seen as latent factors that affect the whole life span. (Hertzman and Power 2003.)

The current study assumes, in line with Erikson's psychosocial theory and the life course approach (Kuh et al. 2003; Salkind 2004; Amick et al. 2016), that the resources for work life are built during several stages of development, and that the risk factors of work disability due to mental disorders accumulate throughout the life span, (Upmark et al. 1999a, 1999b and 2001; Upmark and Thundal 2002; Harkonmäki et al. 2007; Laaksonen et al. 2010; Sidorchuk et al. 2012; Björkenstam et al. 2017). Biological and psychosocial risk processes (Kuh et al. 2003) affect both the incidence of mental disorders, whether these disorders lead to work disability, and whether return to employment is possible. Effective treatment and interventions with correct timing may work as latent factors, creating resources for the whole life span; or as path factors (Hertzman and Power 2003; Kuh et al. 2003; Amick et al. 2016), changing the direction of adverse development.

1.4 Gaps in previous research

The multifactorial aetiology of mental disorders including biological, psychosocial, and psychological risk factors is well known (Patel 2007), and there are several established risk factors for work disability due to mental disorders, such as low socioeconomic status, unemployment, adverse childhood experiences, alcohol abuse, and low control and strain at work (Upmark et al. 1999a, 1999b and 2001; Upmark and Thundal 2002; Harkonmäki et al. 2007; Laaksonen et al. 2010; Sidorchuk et al. 2012; Björkenstam et al. 2017; Knardahl et al. 2017). There is also some evidence that the influence of socioeconomic factors may be particularly important in the work disability of young people (Sumanen et al. 2016; Ervasti et al. 2017). Nevertheless, little is known about young people who have been granted work disability pension.

First, their level of attachment to the labour market before work disability pension is unknown. Second, no previous studies have shown their medical history, clinical characteristics, or their received and planned treatment and rehabilitation, although both international and national studies have shown that the need for psychiatric treatment among young adults is unmet (Patel et al. 2007; Suvisaari et al. 2009; Kasteenpohja et al. 2015 and 2016). The prevalence of psychotherapeutic treatment, or actions to support integration into work life, both before the start of fixed-term work disability pension and after it is granted, have not been previously researched among young Finnish adults with psychiatric work disability.

The third knowledge gap relates to return to work, which is a well-researched area, but most studies of which have focused on middle-aged employees with a stable history of employment and a permanent job contract. Psychotherapeutic interventions have shown to be effective in treating the illness, but the effects on employment outcomes remain largely unknown. Except for the IPS model, no effective interventions that could contribute to the future labour market outcomes of young adults with work disability pension are known.

The mental health disability of young adults has considerable consequences on individual, societal, and financial levels. Despite the increase in work disability due to mental disorders among young adults across Europe is a topic of great concern, little is known of this group of young adults, or the measures that could help them return to the labour market.

2 The present study

2.1 Context of the study: The work disability pension system in Finland

In the Finnish social benefit system, in cases of prolonged illness, work disability pension may be granted after 300 days of sickness absence (ETK 2017b). This income compensation is paid by Kela. The person receiving this benefit may have been employed, unemployed or a student before their work disability period. The work disability pension is paid by an occupational pension institute if the applicant has a history of employment before work disability. If the work disability pension from the occupational pension institute remains small due to a short history of employment, Kela supplements the pension, and the decision regarding work disability pension is made jointly by the two institutes. Kela also pays the pension when that the applicant has never been able to work. The application for work disability pension must be accompanied by a medical certificate that details the diagnosed disorders (ICD-10 code), the effects of the illness on work ability, and the plan for treatment and rehabilitation.

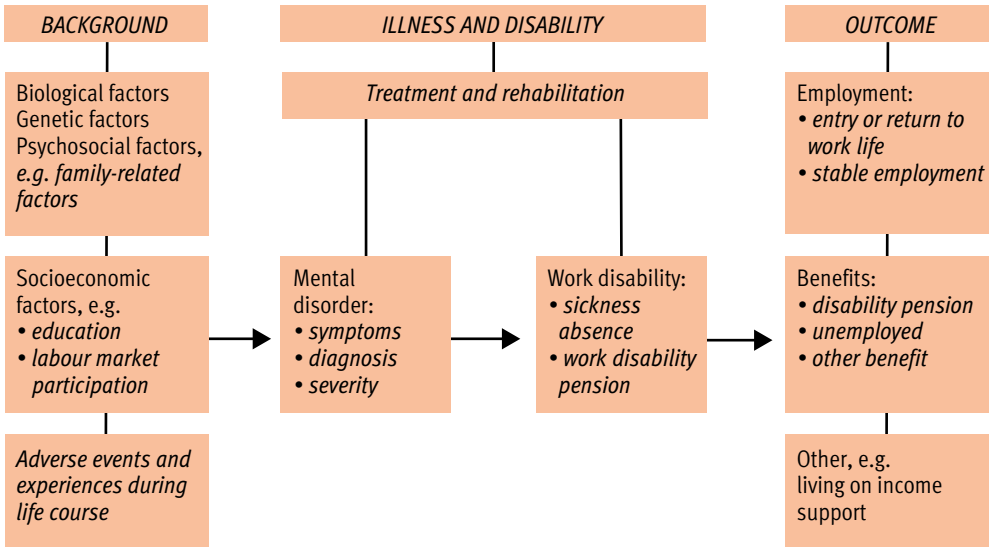
The applications for work disability pension are evaluated considering, in addition to medical factors, the applicant's ability to earn an income through reasonable, available work that fits their vocational qualifications. Age, profession, education, place of residence, and information showing that the rehabilitation options have been determined contribute to the decision. (Kela 2017a; ETK 2017b.)

A work disability pension may be granted as fixed-term, in which case it is possible that, with treatment and rehabilitation, the person may return to work or their studies. Most pensions (85%) for young people are granted as fixed-term pensions (ETK 2015).

2.2 Study framework

The present study examined the backgrounds of young adults and the treatment and rehabilitation they had received before their fixed-term work disability pension, as well as their later employment and the associations of treatment and rehabilitation with the employment outcomes. Figure 2 (p. 24) shows the framework of the study.

Figure 2. Framework of the study. Factors included in the study appear in cursive.



The study comprised four sub-studies, the more specific aims of which were to:

1. Describe the background of the young adults with regard to clinical profiles and attachment to employment and education before pension (Studies I and II).
2. Describe the prevalence and content of received and planned psychotherapeutic and work-oriented interventions (Study III).
3. Explore employment outcomes during a 5.6-year follow-up (Study IV).
4. Explore the associations of the psychotherapeutic and work-oriented interventions with employment outcomes (Study IV).

3 Material and methods

3.1 Data

The data for all the sub-studies were from the research project 'Mental health, work ability and labour market participation among young adults', which comprised all people aged 18–34 years who were granted work disability pension during 2008 due to a mental disorder by an occupational pension institute. The inclusion criteria were ICD-codes F10–F69 and F80–F99 as the primary cause of work disability (ICD-10, International classification of diseases, tenth revision). Cases with ICD-10-codes F00–F09 (organic mental disorders) and F70–F79 (mental retardation) diagnoses were excluded.

In the register of the Finnish Centre for Pensions, 1,181 cases matched our inclusion criteria. From the registers of occupational pension institutes, we found data on 1,163 cases. The data included 98% of all possible cases.

Three researchers collected the data from the occupational pension institutes between September 2012 and June 2013. The data comprised the work disability pension applications and the accompanying medical certificates, which also specified the plans for treatment and rehabilitation during the work disability period. The data on entry to employment and employment status at the end of the follow-up were derived from the employment records of the Finnish Centre for Pensions (described in detail in Table 2, pp. 26–28).

The study was approved by the Ministry of Social Affairs and Health, the Ethical Committee of the Hospital District of Helsinki and Uusimaa, the participating occupational pension institutes, and the register keepers.

Table 2 presents the factors and their classes (numeric value or yes/no), data sources, and the sub-studies in which the variables were used.

Table 2. Factors and their classes, data sources, measures, and the sub-studies in which the variables were used.

Variable	Definition of variable and classes of variable	Source	Sub-studies including variable
Sociodemographic factors			
Sex		Medical records	All
Age	18–24 25–29 30–34	Medical records	All
Basic education	Comprehensive school, high school	Work disability application	All
Vocational education	No vocational education, vocational course or apprenticeship, vocational school, university of applied sciences, university	Work disability application	I, II, III
Attachment to employment	Those with 730 or more days (2 years) of employment during the three years preceding work disability compensation period were classified as attached to employment. Yes/no.	Employment records from the Finnish Centre for Pensions	All
Attachment to education	Being enrolled in an educational institute. Yes/no.	Work disability application	I, II, III
Clinical factors			
Primary diagnosis	Based on ICD-10 classification: psychotic (F20–F29), depressive (F32–F34), bipolar (F30–F31) and other mental disorders (F10–F19, F40–F99).	Medical records	All
Psychiatric comorbidity	Other psychiatric diagnoses in addition to main diagnosis. Yes/no.	Medical records	I, II, III
Somatic comorbidity	Somatic diagnoses. Yes/no.	Medical records	I, II, III
Harmful alcohol use	Alcohol-related diagnosis or description of harmful alcohol use. Yes/no.	Medical records	I, III
Drug use	Drug-related diagnosis or description of drug use.	Medical records	I, III
Substance abuse	Harmful alcohol use or drug use. Yes/no.	Medical records	II
Psychiatric hospital admission	At least one vs. none.	Medical records	I, II, III
Suicide attempts	At least one vs. none.	Medical records	I, II
Symptoms during childhood and adolescence (before age of 18)	Mentioned in medical records relating to current reason for work disability. Yes/no.	Medical records	I, II, III

Table 2 continues.

Table 2 continued.

Variable	Definition of variable and classes of variable	Source	Sub-studies including variable
Mental disorders in family	Mental disorders in family mentioned on medical records.	Medical records	I, II
Childhood and adolescence (before age of 18) adversity	Adverse factors during childhood and adolescence including: parental divorce, learning difficulties, experience of being bullied at school, death or suicide of parent, parental harmful alcohol use or drug use, neglect or sexual abuse, own severe illness, own harmful alcohol use or drug use during childhood or adolescence, or something else seen as adverse and contributing to current mental disorder. Yes/no for each factor.	Medical records	I, II, III
Number of psychotropic drugs recorded	Cumulative number of drugs recorded in medical records.	Medical records	II
Treatment and rehabilitation			
Received psychotherapeutic intervention	Discussion-oriented intervention carried out by trained psychotherapist during regular appointments (at least one appointment every two weeks) before the participant applied for work disability pension. Yes/no.	Medical records	III, IV
Received work-oriented intervention	The variable included the following interventions: 1. Assessment of working capacity and evaluations of rehabilitation needs (detailed assessment at rehabilitation institute or hospital ward, or vocational counselling by vocational psychologist). 2. Rehabilitative courses and training 3. On-the-job rehabilitation. Work trials and other forms of work with salary supplemented by social or rehabilitation benefits. 4. Social rehabilitation. e.g. rehabilitative work and club house activities before work disability pension application. Yes/no.	Medical records	III, IV

Table 2 continues.

Table 2 continued.

Variable	Definition of variable and classes of variable	Source	Sub-studies including variable
Planned psychotherapeutic intervention	Interventions as in 'received psychotherapeutic intervention' in medical treatment and rehabilitation plan attached to work disability application. Yes/no.	Medical records	III, IV
Planned work-oriented intervention	Interventions as in 'received work-oriented intervention', in medical treatment and rehabilitation plan attached to work disability application. Yes/no.	Medical records	III, IV
Employment outcomes			
Entry into employment; time to first day of employment	Number of days from first day of work disability pension to first day in employment or to end of follow-up period (31 Dec 2013).	Employment records from the Finnish Centre for Pensions.	IV
Employment status at end of follow-up	Employed vs. not employed at end of follow-up (31 Dec 2013). Yes/no.	Employment records from the Finnish Centre for Pensions.	IV

3.2 Statistical analyses

3.2.1 Studies I and III

Studies I and III were cross-sectional studies that applied univariate and multivariatelog-binomial regression analysis (McNutt et al. 2003), and which calculated the prevalence ratios (PRs) and their 95% confidence intervals (CIs) for the analysed factors. This method was chosen instead of logistic regression analysis because the outcomes were rather common (> 10%).

In Study I, the first analysis was conducted to determine the factors that were associated with attachment to employment or education, and the second analysis examined only those associated with attachment to employment. The analysis of attachment to employment or education was conducted among 1,097 people who were not on family leave, conscripts, in state-supported employment, or self-employed (n = 53, 5%). Those whose current employment or education status was unclear (n = 13, 1%) were also excluded. The second analysis of attachment to employment only also excluded students (n = 229, 20%), leaving 868 individuals in the studied sample.

In both analyses, the univariate models were calculated first, after which the models were adjusted for sex and age (as a continuous variable) in the first phase, and for the primary diagnosis class (psychotic, bipolar, depressive, or other mental disorder) and hospital admissions as a proxy measure for severity of illness in the second phase.

Study III applied log-binomial regression analysis to examine the factors associated with 1) participation in a psychotherapeutic intervention prior to pension application, 2) participation in a vocational intervention prior to pension application, 3) planned psychotherapeutic intervention in the pension application, and 4) planned vocational intervention in the pension application. After calculating the univariate model, the models were adjusted first for sex, age and diagnostic class, and then for psychiatric hospital admission. Students (n = 229, 18%) and those whose current employment or education status was unclear (n = 13, 1%) were excluded from the analysis of participation in vocational interventions, as they were not the target group of these interventions. This left 921 people in this sub-sample. We used IBM SPSS statistics 20 software in the analyses.

3.2.2 Study II

Study II was a cross-sectional study, which used latent class analysis (LCA) to identify potential sub-phenotypes or classes according to the history of adverse clinical and individual characteristics (Lanza et al. 2007). The models were fitted with 1 to 10 classes and relative fit was assessed using the Akaike information criterion (AIC), the Bayesian information criterion (BIC), the consistent Akaike information criterion (CAIC), and adjusted Bayesian information criterion, entropy, and the parametric bootstrap likelihood ratio test for LCA. The best-fitting model was assessed using these statistics, parsimony and the interpretability of the classes. (Nylund et al. 2007.) Individuals were then assigned to their most likely class. We analysed the distributions of the classes by sex, age and diagnostic class using the χ^2 test, and we evaluated the differences in the age and diagnostic classes on the basis of adjusted standardized residuals with a value of over 2 (Agresti 2002). The accumulation of adverse characteristics in the participants' medical history was calculated as a simple sum, and we analysed the differences between the different classes and diagnostic categories (psychotic, depressive, bipolar, other) in the total number of adversities using a univariate general linear model. We used the PROC LCA in SAS 9 in the analyses.

3.2.3 Study IV

Study IV was a prospective study and applied Cox proportional-hazards models to examine the association between interventions planned for young adults and entry to employment. The associations between the independent variables and employment status (employed vs. not) at the end of the 5.6-year follow-up on 31 December, 2013 were assessed using binary logistic regression models. In the Cox models, for each participant the follow-up person-days were calculated as those from the first day of work disability pension to the first day in employment or to the end of the follow-up period (31 December 2013), whichever came first. The time-dependent interaction terms between each predictor and logarithm of the follow-up period were non-significant, confirming that the proportional hazards assumption was justified (all p values > 0.70). The hazard ratios (HRs) and their 95% confidence intervals (95% CIs)

for categorical independent variables provided risk estimates. In both analyses, the exposure, planned interventions for each participant, were classified as follows: 1) psychotherapeutic intervention vs. neither intervention (= no psychotherapeutic, no work-oriented), 2) work-oriented intervention vs. neither intervention, or 3) both psychotherapeutic and work-oriented intervention vs. neither intervention.

Model 1 was adjusted for age and sex. Model 2 was adjusted for age, sex, basic education, type of diagnosis (psychosis, depression, bipolar, and other) and psychiatric hospital admission. Model 3 was adjusted for all the factors in Model 2, and additionally for attachment to employment before work disability pension. The analyses were repeated in groups determined by basic education, attachment to employment before work disability pension, and diagnosis category with both employment outcomes. Finally, we assessed the associations between employment outcomes and the four types of work-oriented interventions: 1) assessment and evaluation, 2) rehabilitative courses and training, 3) on-the-job rehabilitation, and 4) social rehabilitation vs. no intervention, using Cox proportional-hazards models and logistic regression. The statistical analyses were performed using phreg and logistic procedures in SAS 9.4.

4 Results

4.1 Characteristics of the target group

Of the 1,163 participants, whose mean age was 28.5 (SD 4.3), 44% were men and 56% were women. Forty-seven per cent were in the 30–34-year age group, 31% were in the 25–29-year age group, and 22% were in the youngest age group of 18–24 years. The majority of the participants had completed only comprehensive school as basic education and 40% had completed high school. In most cases, fixed-term work disability pension was granted due to depressive disorders (39%) or psychotic disorders (34%), followed by bipolar disorders (14%) and other mental disorders (12%).

All the examined young adults were receiving treatment in a psychiatric clinic, health centre, or occupational health care, 98% of them had been prescribed psychotropic medication, and 90% had tried at least two medications. For 62% of the participants, the mental disorder which led to work disability had started at least two years before the work disability application.

Adverse factors during childhood or adolescence were described in the medical records of 47%, and for 47% psychiatric symptoms were reported as present already in childhood or adolescence. In 31% of the cases, mental health problems among close relatives were reported. Half of the participants had a comorbid psychiatric disorder, while only 8% had a comorbid somatic disorder. For 32%, drug use or harmful alcohol use were reported in medical records. A total of 66% had received treatment in a psychiatric hospital, 21% had reportedly attempted suicide according to their medical records, and 15% had received treatment for harmful alcohol use or substance use.

4.2 Attachment to employment or education prior to work disability pension

A total of 545 (50%) individuals were attached to employment or education preceding their application for work disability pension. Altogether, 33% were in employment, 21% in education, and 46 (4%) individuals were both employed and students. Attachment to employment was defined as at least two years of work experience during the past three years prior to work disability pension application, and education as enrolment in an educational institute.

After adjusting for age, sex, diagnosis, and hospital admission, log-binomial regression analysis (Table 3, p. 32) showed that attachment to employment or education was higher among women, among individuals with high-school education, and among those with bipolar disorder, depressive disorder, or other disorder diagnostic classes than among those with psychotic disorders. Furthermore, attachment was associated with no harmful alcohol use or drug use, as well as with no recorded symptoms in childhood or adolescence.

A total of 316 individuals (36%) had at least two years of work experience during the three years preceding work disability pension, 153 (18%) had been employed for 365–729 days (1–2 years), 273 (31%) for 1–364 days (0–1 years), and 126 (15%) had not been employed at all. Those employed for 730 days or more were defined as attached to employment. When the focus was on attachment to employment, students were excluded from the sample. Based on log-binomial regression models, the factors related to attachment were largely the same as the factors associated with attachment to both employment or education, with the exception that attachment was at a higher level among the oldest (30–34 years) and the second oldest age groups than among the youngest (18–24 years). The absence of comorbid psychiatric disorders was also connected with attachment, whereas the association between drugs and attachment was narrowly non-significant, as was the association between other disorders vs. psychotic disorders and attachment. Table 3 shows these associations.

Table 3. Associations of sociodemographic and clinical factors with attachment to employment and/or education or employment only before work disability pension. Only significant associations are shown.

	Attachment to employment or education PR, 95% CI[a] (N = 1,097)	**Attachment to employment[a] PR, 95% CI[a] (N = 868)**
Sex: women vs. men	1.23 (1.08–1.40)	
Age: 25–29 vs. 18–24		1.60 (1.17–2.19)
30–34 vs. 18–24		1.56 (1.16–2.10
Education: High school vs. comprehensive school	1.47 (1.30–1.65)	1.29 (1.08–1.53)
Vocational education: University vs. no vocational education		1.85 (1.30–2.64)
University of applied sciences vs. no vocational education		1.98 (1.45–2.70)
Vocational school vs. no vocational education		1.34 (1.01–1.76)
Diagnosis: depressive vs. psychotic	1.40 (1.19–1.64)	1.80 (1.40–2.30)
Bipolar vs. psychotic	1.46 (1.21–1.75)	1.95 (1.49–2.57)
Other mental disorder vs. psychotic	1.26 (1.01–1.58)	
Psychiatric comorbidity: no vs. yes		1.25 (1.05–1.49)
Harmful alcohol use: no vs. yes	1.32 (1.13–1.54)	1.38 (1.11–1.71)
Drug use: no vs. yes	1.33 (1.07–1.64)	
Symptoms during childhood and adolescence no vs. yes	1.22 (1.08–1.37)	1.46 (1.21–1.76)

[a] Log-binomial regression analysis, prevalence ratio, confidence interval. Adjusted for age, sex, diagnosis and psychiatric hospital admission.

4.3 Clinical profiles

Table 4 presents the distribution of adversities mentioned in the medical records and their attachments. Of the risk factors and adversities, the most common factor was 'no attachment to employment or education' (51%); followed by 'a large number of psychotropic medications recorded', which was used as a proxy measure of difficulties in finding effective treatment of illness (51%); and 'comorbid psychiatric disorder' (50%).

LCA identified three profiles based on medical history. The three-class solution was the best-fitting model in terms of fit statistics, parsimony, and interpretability. The first class, 'Childhood (including adolescence) adversity' (prevalence 33%), was associated with adverse events during childhood and adolescence, symptoms during childhood and adolescence, and a family history of mental disorders. Adverse events during childhood included learning difficulties, being bullied at school, neglect or sexual abuse, own serious physical illness, own alcohol or drug use during childhood or adolescence, parental divorce, parental alcohol or drug abuse, death of parent, or something else termed an adverse factor during childhood in the medical records. This profile was characterized by depressive disorders as a diagnosis related to work disability pension. The second profile, 'Comorbid' (prevalence 23%), was characterized by a high number of accumulated adversities, comorbid mental disorders, substance use, suicide attempts, and recorded medications. This profile (prevalence 44%) was linked with bipolar disorder. In addition to these two clearly defined profiles, we identified a third profile, characterized by psychotic disorders as the reason for work disability. This profile was not linked with any special adversity, but rather with a sparse description of medical history in the medical records. It was named 'Undefined'.

Table 4. Distribution of adversities mentioned in medical records and their attachments (n = 1,163).

	n	%
Not attached to work or studies	598	51
5+ medications used	588	51
Comorbid mental disorder	586	50
Symptoms during childhood and adolescence	552	48
Childhood and adolescence adversity	546	47
Substance abuse	371	32
Family history of mental disorders	363	31
No vocational education	357	31
Suicide attempt	242	21
Comorbid somatic illness	93	8

4.4 Received and planned psychotherapeutic interventions

In total, 392 (34%) of the young adults had participated in a psychotherapeutic intervention before work disability pension, and for 360 (31%), a psychotherapeutic intervention was in the treatment and rehabilitation plan attached to their work disability pension application. Of those whose plan included psychotherapeutic intervention, 74% had already participated in a psychotherapeutic intervention before the work disability pension application, and in most of these cases it was planned that the same therapy process would continue. In total, 58% of the participants had neither participated in psychotherapeutic intervention before the granted work disability pension nor their treatment and rehabilitation plan contained psychotherapeutic treatment.

The majority of the therapies were individually-focused therapies. The most often named therapy was cognitive-behavioural, followed by psychodynamic therapy. Supportive therapy was mentioned in some of the cases in which work disability pension was granted due to a psychotic disorder.

Table 5 (p. 35) presents the associations of socioeconomic and clinical characteristics with received and planned psychotherapeutic interventions. Based on log-binomial regression analysis (adjusted for sex, age, diagnosis, and psychiatric hospital admission), participation in a psychotherapeutic intervention before work disability pension was associated with being female, having completed high school and university-level education, being attached to work life before work disability pension, no harmful alcohol use and drug use, disorders other than psychotic disorder as the diagnosis related to work disability pension, and symptoms of a mental disorder already in childhood or adolescence.

Planned psychotherapeutic interventions were mainly associated with the same factors as participation in an intervention before work disability pension. However, 'symptoms during childhood and adolescence' were only associated with received interventions, and 'no psychiatric hospital admission' only with planned interventions. Furthermore, the absence of somatic co-morbidity was associated with planned interventions after adjustments.

Table 5. Participant characteristics associated with having received psychotherapeutic intervention before work disability pension, and interventions in the treatment and rehabilitation plan. Only statistically significant associations are shown.

Characteristics	Received intervention PR, 95% CI[a] (n = 1,163)	Planned intervention PR, 95% CI[a] (n = 1,163)
Sex: women vs. men	1.80 (1.49–2.18)	1.46 (1.21–1.75)
Education: High school vs. comprehensive	1.63 (1.39–1.91)	1.49 (1.27–1.75)
Vocational education: University degree vs. no voc. ed.	1.47 (1.16–1.87)	1.55 (1.18–2.02)
Attached to work life vs. no	1.34 (1.15–1.57)	1.27 (1.07–1.49)
Harmful alcohol use vs. no	0.71 (0.57–0.89)	0.54 (0.42–0.70)
Drug use vs. no	0.61 (0.44–0.85)	0.40 (0.26–0.62)
Disorder: Depressive vs. psychotic	2.11 (1.66–2.67)	2.85 (2.14–3.79)
Bipolar vs. psychotic	1.72 (1.20–2.30)	2.04 (1.44–2.88)
Other mental disorder vs. psychotic	2.14 (1.60–2.85)	2.62 (1.88–3.66)
Psychiatric hospital admission vs. no		0.78 (0.66–0.92)
Psychiatric symptoms during childhood and adolescence vs. no	1.40 (1.19–1.65)	
Somatic co-morbidity vs. no		0.59 (0.41–0.86)

[a] Log-binomial regression analysis, prevalence ratio, confidence interval. Adjusted for sex, age, diagnosis, and psychiatric hospital admission.

4.5 Received and planned work-oriented interventions

We analysed participation in work-oriented interventions prior to work disability pension among 921 participants who were not students. Those with an unclear employment status (n = 13) were also excluded. A total of 235 non-students (26%) had received a work-oriented intervention before work disability application, and for 373 (32.1%) of the population, these interventions were planned. A total of 485 (53%) non-students had neither received a work-oriented intervention before the work disability pension, nor their treatment and rehabilitation plan contained a work-oriented intervention. The categories of work-oriented interventions received before the work disability application and interventions in the treatment and rehabilitation plan attached to the work disability application are presented in Table 6 (p. 36). Five per cent had participated in an evaluation of work disability and rehabilitation needs before work disability application, and for 6% this evaluation was planned. The figures for rehabilitative courses and training were 9% for received and 13% for planned; for on-the-job rehabilitation, 10% for both received and planned interventions; and for social rehabilitation, 5% for both received and planned interventions.

Table 6. Categories of work-oriented interventions received before work disability application and those in the treatment and rehabilitation plan attached to work disability application. The same participants may have participated in several types of interventions.

	Received interventions		Planned interventions	
	N = 921[a]	%	N = 1,163	%
Any of the interventions	235	25.5	373	32.1
Assessment and evaluation	49	5.3	68	5.8
Work capacity assessment or evaluation of rehabilitation needs	42	4.6	37	4.0
Vocational counselling	7	0.8	31	0.3
Rehabilitative courses and training	83	9.0	149	12.8
Courses to support employment or vocational rehabilitation	51	5.5	73	6.2
Job coaching	18	2.0	16	1.4
Vocational education (supplemented by rehabilitation allowance)	15	1.6	60	5.2
On-the-job rehabilitation	94	10.2	113	9.7
Work trial	52	5.6	85	7.1
Supported employment (pay subsidy)	18	2.0	1	0
Partial sickness allowance, partial disability pension	10	1.1	20	1.7
Job modification	5	0.5	9	0.7
Work as trainee	9	1.0	1	0
Social rehabilitation	48	5.2	55	4.7
Rehabilitative work, club activities	48	5.2	55	4.7

[a] Non-student population.

Participation in work-oriented interventions prior to work disability pension application was associated with older age (30–34 years), no university-level education, childhood and adolescence adversity, psychiatric symptoms already in childhood or adolescence, and not being attached to employment or education. In turn, planned work-oriented interventions were only associated with the absence of harmful alcohol use or drug use (Table 7, p. 37).

Table 7. Participant characteristics associated with work-oriented intervention received before work disability pension application, and work-oriented interventions in the treatment and rehabilitation plan. Only statistically significant associations are shown.

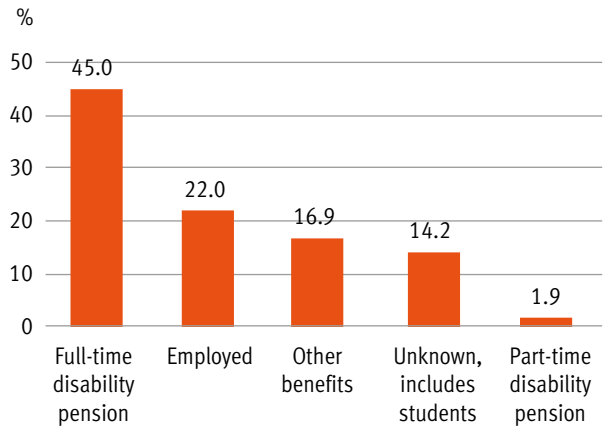
Characteristics	Received intervention PR, 95% CI[a] (n = 921)	Planned intervention PR, 95% CI[a] (n = 1,163)
Age: 30–34 vs. 18–24 years	1.61 (1.12–2.23)	
Education: University degree vs. no vocational education	0.21 (0.68–0.66)	
Childhood and adolescence adversity	1.50 (1.20–1.60)	
Attached to employment or education	0.64 (0.49–0.83)	
Psychiatric symptoms in childhood or adolescence	1.28 (1.02–1.60)	
Harmful alcohol use		0.80 (0.65–0.98)
Drug use		0.79 (0.60–0.99)

[a] Log-binomial regression analysis, prevalence ratio, confidence interval. Adjusted for sex, age, diagnosis, and psychiatric hospital admission.

4.6 Entry to employment and employment status at end of follow-up

Based on the register of the Finnish Centre of Pensions, at the end of the 5.6-year follow-up (31 Dec 2013), 22% of the participants were employed and 45% were on full disability pension (Table 7). Figure 3 presents the situation at the end of the follow-up. Altogether 48% had been employed at some time during the follow-up. Among all the young adults studied, the average number of days employed during the whole follow-up period was 377.

Figure 3. Employment status of young adults at end of the 5-year follow-up period (%).



4.7 Associations of psychotherapeutic and work-oriented interventions with employment

Altogether 250 (22%) of the young adults had only a planned psychotherapeutic intervention (no work-related intervention), and 263 (23%) had a only a planned work-oriented intervention (no psychotherapeutic intervention). Both types of interventions were planned for 110 (10% of the participants) and neither were planned for 540 (46%) of all the young adults studied.

Based on Cox proportional hazard models (adjusted for age, sex, basic education, diagnosis, psychiatric hospital admission, and attachment to employment before work disability pension application), the participants with a planned psychotherapeutic intervention had quicker entry to employment than those for whom no interventions were planned (HR = 1.34, 95% CI 1.06–1.68).

Planned work-oriented interventions on the whole, including the assessment of work capacity and evaluation of rehabilitation needs, rehabilitative courses and training, on-the-job rehabilitation, and social rehabilitation, did not predict employment outcomes. However, the 'rehabilitative courses and training' sub-group was associated with earlier entry to employment (HR = 1.34, 95% CI 1.03–1.75) after adjusting for sex, age, basic education, diagnosis, and psychiatric hospital admission, and attachment to employment before work disability pension. The 'on-the-job rehabilitation' sub-group was associated with earlier entry into employment (HR = 1.52, 95% CI 1.14–2.02), but after adjusting for attachment to employment status before work disability pension, the difference was no longer statistically significant. Logistic regression analysis showed that the participants for whom both psychotherapeutic and work-oriented interventions were planned were more often employed (32%) at the end of follow-up (OR = 1.77, 95% CI = 1.07–2.95) than those for whom neither type of intervention was planned (18%).

5 Discussion

The present study examined young adults on work disability pension due to a mental disorder. The main results can be summarized as follows: the most common diagnoses were depressive disorders, followed by psychotic disorders and bipolar disorder. Only half of the young adults were attached to employment or education, and just over a third were attached to employment at the time of the work disability pension application. Several socio-demographic and clinical characteristics were associated with attachment to employment or education. LCA revealed three clinical profiles: 'Childhood (including adolescence) adversity' was associated with depressive disorders, symptoms during childhood or adolescence, adverse factors during childhood, and family history of mental disorder; 'Comorbidity' was associated with bipolar disorder, comorbid mental disorders, suicidality, substance abuse, and a high number of recorded medications; and 'Undefined' was associated with psychotic disorders and scarce information on medical history in medical records.

One out of three participants had received psychotherapeutic interventions before their work disability pension. Planned psychotherapeutic intervention was mentioned in one out of three applications. The plan was most often targeted at young adults with a diagnosis of depression; women; those with high basic and vocational education; those attached to the labour market; and those with no somatic comorbidity, substance abuse, or psychiatric hospital admission. One out of four had received a work-oriented intervention before work disability pension, and such an intervention was planned for one out of three. Those with substance abuse were largely excluded from planned work-oriented interventions. Twenty-two percent of the study population was employed at the end of the 5.6-year follow-up, while almost half of them were on full disability pension. Half of the participants had undergone a period of employment at some time during the follow-up. Having a psychotherapeutic intervention, a rehabilitative course or training in their treatment and rehabilitation plan, which was attached to their work disability pension application, was associated with quicker entry to employment. Planned psychotherapeutic and work-oriented intervention was associated with being employed at the end of the 5.6-year follow-up. These findings are discussed in more detail in the following chapters.

5.1 Labour market participation preceding disability pension

Only half of the young adults were attached to either employment or education before they were granted work disability pension. A third were attached to employment, and one fifth to education. Attachment to either of these was associated with both socioeconomic (female sex, higher education) and clinical (pension granted due to disorder other than psychotic disorder, having no comorbidity or symptoms in childhood or adolescence) factors. Substance abuse was also connected to low attachment. This is in line with a previous study on people (of all ages) who received temporary work disability pension, which showed that only 54% of those who were granted

work disability pension due to a mental disorder had a work contract a year before the incidence of work disability (Laaksonen and Gould 2015). Although the number of young adults on work disability pension has grown in recent years in Finland, these are a small minority among all young people who are excluded from work life and studies: in 2012, 50,000 young people aged 15–29 were evaluated as not being attached to employment or education (EVA 2012).

The low prevalence of attachment indicates that in many cases, exclusion from the labour market has already occurred before work disability pension. Young adults on disability pension differ from their representative age group in the general population by being less likely to have completed vocational education (16% vs. 31%) (THL 2015). The early incidence (Patel et al. 2007) of illness may have hindered their opportunities to obtain education, and on the other hand, low education is likely to restrict their job opportunities in the current labour market. However, the group of young adults in this study was not homogeneous; a third of them were employed before their work disability pension. This heterogeneity may show that some of them were on a path of accumulating risk factors, which had led to early exclusion from work life; and that others had probably encountered more recent adverse life events, which had contributed to their work disability despite a previously established working career.

As regards rehabilitation during work disability pension, in practice, those not attached to the labour market (i.e., with no permanent job or stable working career) are not eligible for occupational health services. They do not receive support from the workplace, and detecting early symptoms and making an appointment at a health centre may demand more effort from them than contacting occupational health care. Moreover, people with scarce history of employment do not receive vocational rehabilitation organized by work pension institutes, for which those with earnings of a minimum of €34,910.29 during the last five years are eligible (ETK 2017b). This may lead to a delay in detecting health problems and starting treatment, as well as restrict access to effective vocational rehabilitation once the illness has occurred. Among those who are employed, the co-ordinating role between work and health is taken by occupational health care. Supporting the work ability of those who are not employed would require more solid co-operation between health services and labour administration (Lappalainen 2017).

5.2 Clinical profiles

The LCA findings supported the heterogeneity of the group of studied young adults. The study identified three clinical profiles and found that these profiles were connected to different diagnostic classes. The 'Childhood (including adolescence) adversity' profile was characterized by adverse factors during childhood, symptoms during childhood or adolescence, and a family history of mental disorders, and was connected to depression as a reason for work disability pension. The adverse factors during

childhood included both home-related factors such as parental alcohol consumption and parental neglect, as well as school-related factors such as experience of having been bullied at school and learning difficulties. This result is in line with the association found between neglect and abuse in childhood and major depressive disorder during young adulthood (Widom et al. 2007), as well as that between experience of being bullied at school and later depression (Klomek et al. 2008; Kaltiala-Heino et al. 2010).

The 'Comorbid' profile associated with a high number of adversities in the medical records, including comorbid mental disorders, a high number of medications used, substance abuse, and suicide attempts. This profile was associated with bipolar disorder. Previous studies have also linked the adversities associated with this profile to each other. Bipolar disorder both alone (Valtonen 2013) and with comorbid substance abuse (Oquendo et al. 2010) are known risk factors of suicidality. A high number of medications used may be related to comorbidity (Mantere et al. 2006) or delay in diagnostics (Mantere et al. 2004), which are also associated with bipolar disorder. Difficulties in finding effective treatment and efforts to treat substance abuse may partly lead to a high number of medications.

The third profile, 'Undefined', was associated with psychotic disorders and sparse information on the background characteristics of the patient in their medical records. The lack of information may be associated with the severity of the illness in such a way that the severe illness itself is sufficient for a positive pension decision. In cases of acute psychotic illnesses, the work disability of the patient is often obvious, and there is no need to describe medical history in detail to obtain grounds for the need for work disability pension. A limitation of this study may be that the profiles defined were based on the factors included in the study, i.e., data from medical records. Young adults on disability pension due to mental disorders may also have other medical profiles, characterized by risk factors not included in the study.

5.3 Psychotherapeutic and work-oriented interventions

Overall, the percentages of received and planned psychotherapeutic interventions were low, considering that current practice guidelines recommend psychotherapeutic interventions in the treatment of depression, bipolar disorder and also – as regards cognitive behavioural psychotherapy (CBT) - in the treatment of psychotic disorders and schizophrenia. Furthermore, among young people, psychosocial treatment is seen as a primary intervention. (Current care guidelines 2017a, b and c.) One third of the participants had received psychotherapeutic interventions, and for a third of the participants, psychotherapeutic intervention was planned. Two thirds of those for whom psychotherapy was planned had already received it before the work disability pension. Honkonen et al. (2007) found that the prevalence of weekly psychotherapy prior to work disability pension granted due to depression was low, 9% in 1993–1994, and 11% in 2003–2004. Due to focusing on depression only, and the requirement of

weekly psychotherapy, the figures are not completely comparable with the current study. However, both studies suggest relatively low rates of psychotherapy participation among people with work disability pension due to mental disorders.

Psychotherapeutic interventions were largely targeted at women and people with higher education and no substance abuse, and people who had been attached to work life before work disability pension. One explanation for the low prevalence of psychotherapy among men may be the high prevalence of substance abuse among men, as substance abuse intervention is in many cases seen as a precondition for psychotherapeutic interventions. The focus on people who were attached to work life may be due to the fact that many psychotherapies were funded as rehabilitation therapies by Kela. These rehabilitation therapies are targeted at people who, with the help of therapy, are expected to stay in work life or return to work after a period of disability. An earlier study (Aaltonen and Lind 2008) has shown that these therapies are effective in maintaining employment among psychiatric patients without work disability at baseline. Aaltonen and Lind's study also found that the sub-groups that benefited most from psychotherapeutic interventions were men and older participants (38 years and older), those who had started psychotropic medication already before psychotherapy, and those with work experience before psychotherapy. After psychotherapy, the use of psychotropic medication decreased. After the present study, access to psychotherapy has been made easier and rehabilitative psychotherapy funded by Kela is now granted to all eligible patients without second opinion. (For criteria, see Kela 2018.)

The present study found that the number of work-oriented interventions before work disability pension was low. Psychiatric symptoms already present in childhood or adolescence, and childhood and adolescence adversity were associated with having received interventions, while the rate of participation was low among those with university education. It is possible that the low participation in work-oriented interventions among those with high education is partly due to their long education, and that the possible need for work-oriented interventions occurs later. People with substance abuse were largely excluded from work-oriented interventions in treatment and rehabilitation plans. This is likely to be related to the poor expectations of success of the interventions if the substance use disorder is not treated first.

5.4 Integration into labour market after fixed-term work disability pension

At the end of the 5.6-year follow-up, one out of five young adults was employed. Altogether 45% of the population studied was on full disability pension at the end of the follow-up.

Although only one fifth of the young adults was employed at the end of the follow-up, half of the population studied had been employed at some time during the follow up. This may be due to several reasons. It is possible that due to the economic recession and high youth unemployment (Holmström et al. 2014), employment opportunities

were restricted, and contracts were temporary. Furthermore, the severity of the illness may have hindered possibilities to gain and maintain employment. Due to the typically long history of their illness, many of the young adults studied were likely to be in need of long-term support, even after entering or returning to the labour market. A study of people with partial work ability showed that employees needed support for approximately three years after job accommodations made because of (mental) health-related restrictions (Juvonen-Posti et al. 2017).

Support at the workplace is best organized in permanent or long-term work contracts, which are not typical among the young population. With low education and little work experience, finding employment in the current labour market is difficult, even for healthy young people. However, in the best-case scenario, a job with an adequate workload would support well-being and would also act as a rehabilitative element.

5.5 Psychotherapeutic and work-oriented interventions and labour market participation

The young adults for whom both psychotherapeutic and work-oriented intervention was planned were more often employed at the end of the 5.6-year follow-up than the others in the study population. Furthermore, psychotherapeutic interventions and rehabilitative courses or training were independently related to quicker entry to employment, but not with being employed at the end of the follow-up. This finding suggests that stable employment is most likely after the combination of psychotherapeutic and work-oriented support. Furthermore, it is possible that having both these interventions planned is a proxy measure for high-quality treatment. Although the analysis was adjusted for factors known to associate with employment and successful return to work, it is possible that clinical experience has guided clinicians to offer interventions to individuals with the best chances of gaining from them and finding employment.

Psychotherapy as treatment for mental disorders has shown to be beneficial, and is recommended as treatment for a wide range of mental disorders, (see e.g. Current care guidelines 2017a). The results among young adults have also been encouraging (Lindgren et al. 2010; Piet et al. 2010). In Finland, Aaltonen and Lind (2008) examined the data on 2,500 people who had completed rehabilitation therapy funded by Kela. They found that rehabilitation psychotherapy was most efficient in enhancing employment among those with previous employment history. They also found that a third of those who were not in the labour market before psychotherapeutic rehabilitation entered the labour market after it. Knekt et al. (2010) examined the same data but focused on the benefits of therapies with different orientations and lengths and found that all the researched therapies enhanced work ability (assessed using the work ability index based on a questionnaire). Longer therapies were more effective in the long run, while short therapies gave quicker benefits, and their costs were far

lower than long therapies. The current study suggests that psychotherapy may contribute to entry or return to work after a period of work disability and, together with work-oriented interventions, enhance stable employment.

Although work-related interventions as such did not contribute to more stable employment, the sub-group finding that rehabilitative courses and training were predictive of quicker entry to employment is in line with the review that showed that prevocational training was more effective than psychiatric care only (Suijkerbuijk et al. 2017).

5.6 Strengths and limitations of the study

The study included 98% of all the young adults who were granted a fixed-term work disability pension in 2008 due to a mental disorder from an occupational pension institute, but excluded those who were granted the pension due to mental retardation or organic mental disorders. As the study focused on people who were granted the pension from an occupational pension institute, the data did not include young adults who had never been in paid employment and were granted work disability pension from Kela. It may be assumed that in this group of people with no employment history, the disorders due to which the work disability pensions were granted would be more severe, with early incidence, and that this would reduce the possibility of integration into the labour market. Therefore, these results cannot be applied to the whole cohort of young people granted a disability pension due to a mental disorder.

The data included the work disability pension application and the attached medical certificates, and in some cases, also other documents (e.g. psychological statements, rehabilitation examination reports). The number of the attached medical certificates varied from one to nine. Some of the medical certificates were very detailed, whereas in others the information was sparse. Some of the certificates covered the development history of the patient, while others only described the current situation. The scarcity of information was associated with more severe (psychotic) illness, probably because hospital treatment that is planned to continue several months clearly defines the patient as unable to work. Previous research has found the quality of medical certificates to vary (Kivekäs et al. 2012). In the current study, the varied quality of the certificates also decreased the reliability of the data. GAS (Goal Attainment Scaling) scores (see e.g. THL 2018) or the scores of another measure of functional ability were rare on the certificates.

The study focused on psychotherapeutic and work-oriented interventions that were recorded in medical records. The primary treatment contact in most cases was in a psychiatric outpatient clinic. However, in this study it was not possible to evaluate the frequency or quality of this primary treatment contact or whether it continued after work disability pension was applied for. Furthermore, the study data on interventions were gathered from work disability pension application documents, meaning

that it was not possible to examine if the interventions were executed as planned in the documents. Psychotherapy was defined as therapy given by a trained psychotherapist with regular appointments. Most of the therapy processes took place in psychiatric outpatient clinics or by private therapists, compensated as rehabilitation therapy by Kela. However, it is likely that the patients also had supportive discussions that included therapeutic elements with professionals other than psychotherapists, for example, psychologists, social workers, or nurses at outpatient clinics. However, due to the heterogeneity of these actions, it was not possible to evaluate their effects. Furthermore, all the patients had regular contact with a physician (while there was a great variance in the frequency of this), which may have involved both therapeutic elements and support in orientation to work life. However, we were unable to evaluate the role of these factors in the current study.

The outcome of the study was employment. Work ability may be seen as one of the goals of successful psychiatric treatment and rehabilitation, but competitive employment is not the only measure of their success, and even less so of the success of psychotherapeutic interventions. The ability to live independently and a good quality of life are also important goals of treatment, but these were not researched in the current study.

The effects of interventions are best examined in randomized controlled trial settings. The present study was an observational study and had inherent limitations. All the individuals in the studied population were on work disability pension, due to which it was not possible to compare the background factors and adversities during the life span using a control group with no work disability pension. Since individuals were not randomized into interventions, selection cannot be completely excluded. However, it was possible to adjust the results for the factors known to affect return to work, such as age, education, diagnosis, severity of disorder (operationalized as presence of hospital treatment), and previous attachment to work. However, it is likely that the physician's clinical evaluation of a patients' ability to gain from psychotherapeutic or work-oriented intervention affected the selection of patients.

5.7 Economic context during the study

The young adults in this study were granted disability pension in 2008. The growth of the Finnish economy stopped in 2007, and 2008 was the first year of the economic recession. Economists have evaluated that Finland had still not fully recovered from this recession by 2014 (Holmström et al. 2014).

From 2008 to 2010, youth unemployment more than doubled, reaching 23% in 2010. The 'scarring effects' of economic recessions may be long term. In addition to the possibilities of finding employment, societal context and economical changes are likely to affect the behaviour and motivation of individuals (Bynner 2013; Helve and Evans 2013). Young people who have never gained a foothold in the labour market are in a

more vulnerable position than older people during a recession (Lähteenmaa 2013). The long periods of economic recession, starting in the 1990s, may have contributed to the increase in work disability among young adults by restricting their possibilities for positive employment experiences. However, disability due to mental disorders has also increased in other European countries with different economic development (Kaltenbrunner Bernitz et al. 2013).

Despite the difficult period in Finland in terms of the economy, our results do not support the assumption that disability pensions for young adults are granted because of poor employment possibilities or lack of motivation to work. The young adults who were granted work disability pension had a history of long-term, severe disorders. The economic context may nevertheless have affected the low rates of employment at follow-up (Vancea and Utzet 2017).

5.8 Theoretical perspectives

The results of the study supported the view that among many of the young adults, the risk factors of work disability had accumulated throughout the life course, and early adversity, low education, unemployment, and poor work experience were interwoven. However, some individuals had a high level of education and a stable employment history, and for them the origin of illness was perhaps more reactive, possibly related to an adverse life event in young adulthood. The current study found sub-groups among young adults that were characterized by different adversities. However, there is likely to be great variation in the health and integration into labour market paths of different individuals. Ideally, life-course-oriented research would also be able to state the temporal order of the exposure to outcome (e.g. work disability) (Ben-Schlomo and Kuh 2002) and determine the role of different adversities as latent, pathway or cumulative risk factors (Hertzman and Power 2003).

As pointed out by Amick et al. (2016), health is a strong determinant of work life trajectories, and this may become emphasized in cases of mental disorders, with typically early incidence (Patel et al. 2007). While risk factors of work disability may accumulate throughout the life course, the same is true of resources for work life (Salkind 2004), which may be enhanced by, for example, psychotherapy or work-oriented interventions.

5.9 Practical implications

The present results emphasize the detection of adversities. In many cases, the process of exclusion from the labour market begins years before the work disability pension decision. Adverse factors during childhood or adolescence were described by half of the young adults studied, and in half of the cases, the onset of illness was during school years. The adverse factors during childhood or adolescence were both family- and school-related and were connected to depression as the reason for work dis-

ability pension. Support for families, improving social climate in schools, prevention of bullying, offering support for learning difficulties, adequate resources in school health care, and psychiatric treatment and psychotherapy during childhood are actions which, in addition to other outcomes, are likely to prevent later work disability, particularly that due to depression.

The results also suggest that psychotherapeutic interventions, which in many cases were realized as rehabilitation therapies compensated by Kela, contribute to earlier entry to the labour market after fixed-term work disability pension, and together with work-oriented interventions, enhance stable employment. The availability of psychotherapy is central to both preventing work disability and enhancing return to work after a period of disability.

Substance abuse was found to associate strongly with work disability due to mental disorders among young adults, especially among men. Preventing substance abuse and effective substance abuse interventions are important for decreasing work disability due to mental disorders among young adults.

Low attachment to employment before work disability pension creates challenges for rehabilitation. In many of these cases, occupational health services, which link medical treatment and the workplace, are not available. As most young adults in the target group do not have an employment contract, work accommodations, which are shown to contribute to the return to work (Johansson et al. 2006), are not possible without first finding a new job. The same applies to on-the-job rehabilitation, such as work trials and individual placement support models, which have shown to be effective in maintaining competitive employment (Bond et al. 2008; Marshall et al. 2014). We need new models, which make on-the-job rehabilitation with adequate support at the workplace possible for young people with mental disorders and without a current work contract. At the time of the study, work-oriented interventions for young adults were arranged by various service providers with numerous titles and project funding, which makes navigating the right people to the right interventions burdensome for health personnel.

Prolonged absence from work is known to reduce the likelihood of return (Lagerveld and Houtman 2017). When possible, depending on the resources of the patient, adequate work-related interventions should be arranged simultaneously with psychiatric treatment and psychotherapy. Return to work should be arranged gradually, with the opportunity to experiment and change and take a step backwards when needed. Work-related issues should be taken into consideration throughout the treatment process.

After the study period, the work participation of people with partial work ability has been developed in, for example, the 'Career opportunities for people with par-

tial work ability' project of the Ministry of Social Affairs and Health (STM 2017), and Kela's renewed rehabilitation strategy for mental health rehabilitees, which aims to support employment (Kela 2017b). Furthermore, the new low-threshold service, 'Ohjaamo' (Ohjaamot 2017), is likely to reach young adults at risk of work disability due to mental disorders.

5.10 Future studies

Mental and substance use disorders are the leading cause of years lived with disability worldwide (Whiteford et al. 2013), and their role, especially that of unipolar depression (Mathers et al. 2006), in the burden of diseases in high income countries is projected to increase. Work disability due to mental disorders has been increasing among young people (Kaltenbrunner Bernitz et al. 2013). In addition to finding new ways to reduce the well-known risk factors of mental disorders, future studies should develop and test models that aim to prevent early exclusion from school or work life. Many actions, shown as effective in vocational rehabilitation (Johansson et al. 2006; Laaksonen and Gould 2015; Lagerveld and Houtman 2017) are planned for the context of stable employment, while in addition to individual placement and support (IPS) models (Bond et al. 2015 and 2016), work-oriented interventions that would help integration to work life among young adults with mental disorders, no work contract and poor work experience, are lacking. This new kind of intervention should be developed, and their effects should be evaluated.

Although the current study encouraged the view of accumulation of risk factors, it did not examine the temporal order or the role of adversities as latent or pathway factors. The interaction, temporal order, and role of certain adversities and risk factors should be examined using qualitative methods to better understand the paths of exclusion from the labour market.

The current study did not examine the reasons behind the scarcity of both psychotherapeutic and work-oriented interventions. It is possible that the availability of interventions restricts their use, and there might be regional differences in the availability of rehabilitation. Future studies should also examine regional equality in the availability of interventions.

In addition to health-related and socio-economic factors, self-evaluation of one's functional capacity (Blank et al. 2008) has been shown to affect return to work after a period of work disability. However, the role of self-evaluation of work ability among young adults with work disability due to mental disorders has not been examined, and could thus be one topic of future studies.

In the current study, the assessment of work ability was not associated with later employment outcomes. It is possible that these assessments were mainly targeted at patients with the poorest prospects of employment. Future studies could examine the

role of work ability assessment in rehabilitation, and whether assessment should be offered earlier in the process to a broader group of patients.

5.11 Conclusions

Due to their early incidence, mental disorders may hinder the responses of young people to development tasks and role transitions. In many cases, work disability is associated with early onset of symptoms, low education and poor attachment to the labour market. Preventing work disability due to mental disorders among young people should include early detection with a specific focus on risk groups, and a low threshold to interventions throughout the life course, particularly at school age. Intensive efforts of psychiatric treatment and vocational rehabilitation should precede the decision of fixed-term work disability pension. To promote labour market participation, it is highly important to focus on actions that combine psychotherapeutic treatment with work-oriented interventions. Instead of various projects with temporary funding, interventions should be arranged as stable structures (such as on-the-job rehabilitation) and should also be provided to young people with no permanent job.

References

Aaltonen T, Lind J. Miten työkyky muuttuu Kelan tukeman psykoterapiakuntoutuksen jälkeen? Rekisteriseuranta Kelan psykoterapiaa saaneiden työ- ja opiskelukyvystä vuosina 2002–2004. [The changes in work ability after psychotherapeutic rehabilitation provided by the Social Insurance Institution of Finland.] Helsinki: Kela, Sosiaali- ja terveysturvan tutkimuksia 95, 2008.

Agresti A. Categorical data analysis, 2nd edn. New York, NY: Wiley, 2002.

Airaksinen E, Wahlin Å, Larsson M et al. Cognitive and social functioning recovery from depression. Results from a population-based three-year follow-up. J Affect Disord 2006; 96: 107–110.

Amick BC, McLeod CB, Bültmann U. Labor markets and health. An integrated life course perspective. Scand J Work Environ Health 2016; 42: 346–353.

Arnett JJ. Emerging adulthood. A theory of development from the late teens through the twenties. Am Psychol 2000; 55: 46–80.

Arnett JJ. Emerging adulthood. What is it, and what is it good for? Child Dev Perspects 2007; 1 (2): 68–73.

Ben-Schlomo Y, Kuh D. A life course approach to chronic disease epidemiology. Conceptual models, empirical challenges and interdisciplinary perspectives. Int J Epidemiol 2002; 31: 285–293.

Bilder RM, Goldman RS, Robinson D et al. Neuropsychology of first-episode schizophrenia. Initial characterization and clinical correlates. Am J Psychiatry 2000; 157: 549–559.

Billari FC, Liefbroer AC. Toward new pattern of transition to adulthood? Adv Life Course Res 2010; 15 (2–3): 59–75.

Björkenstam E, Hjern A, Vinnerljung B. Adverse childhood experiences and disability pension in early midlife. Results from a Swedish national cohort study. Eur J Public Health 2017; 27: 472–477.

Blank L, Peters J, Pickvance S, Wilford J, MacDonald E. A systematic review of factors which predict return to work for people suffering episodes of poor mental health. J Occup Rehabil 2008; 18 (1): 27–34.

Blonk RWB, Brenninkmeijer V, Lagerveld SE et al. Return to work. A comparison of two cognitive behavioural interventions in cases of work-related psychological complaints among the self-employed. Work Stress 2006; 20 (2): 129–144.

Bond GR, Drake RE, Becker DR. An update of randomized controlled trials of evidence-based supported employment. Psychiatr Rehabil J 2008; 31: 280–290.

Bond GR, Drake RE, Luciano A. Employment and educational outcomes in early intervention programmes for early psychosis. A systematic review. Epidemiol Psychiatr Sci 2015; 24: 446–457.

Bond GR, Drake RE, Campbell K. Effectiveness of individual placement and support supported employment for young adults. Early Interv Psychiatry 2016; 10: 300–307.

Bynner J. School to work transitions and well-being in changing social landscapes. In: Helve H, Evans K. Youth and work transitions in changing social landscapes. London: Tufnell Press, 2013: 31–44.

Clinical guideline. Depression in adults. Recognition and guidance. London: National Institute for Health and Care Excellence, 2017. Available online at: ‹https://www.nice.org.uk/guidance/CG90/chapter/introduction›. Accessed 10 Dec 2017.

Collishaw S, Maughan B, Goodmand R et al. Time trends in adolescent mental health. J Child Psychol Psychiatry 2004; 45: 1350–1362.

Copeland WE, Shanahan L, Davis M et al. Untreated psychiatric cases increase during the transition to adulthood. Psychiar Serv 2015; 66: 397–403.

Crowther R, Marshall M, Bond GR, Huxley P. Vocational rehabilitation for people with severe mental illness. Cochrane Database Syst Rev 2001; (2): CD003080.

Current care guidelines. Depression. Helsinki: Duodecim, 2017a. [Full guidelines available in Finnish. Abstract available in English.] Available online at: ‹www.kaypahoito.fi›. Accessed 18 Oct 2017.

Current care guidelines. Bipolar affective disorder. Helsinki: Duodecim, 2017b. [Full guidelines available in Finnish. Abstract available in English.] Available online at: ‹www.kaypahoito.fi›. Accessed 18 Oct 2017.

Current care guidelines. Schizophrenia. Helsinki: Duodecim, 2017c. [Full guidelines available in Finnish. Abstract available in English.] Available online at: ‹www.kaypahoito.fi›. Accessed 18 Oct 2017.

Ervasti J, Vahtera J, Pentti J et al. Depression-related work disability. Socioeconomic inequalities in onset, duration and recurrence. PLoS one 2013; 8 (11): e79855.

Ervasti J, Vahtera J, Virtanen P et al. Is temporary employment a risk factor for work disability due to depressive disorders and delayed return to work? The Finnish Public Sector Study. Scand J Work Environ Health 2014; 40: 343–352.

Ervasti J, Mattila-Holappa P, Joensuu M et al. Predictors of depression and musculoskeletal disorder related work disability among young, middle-aged, and aging employees. J Occup Environ Med 2017; 59 (1): 114–119.

ETK. Fixed-term work disability pensions among young adults. Unpublished statistics. Helsinki: ETK, 2015.

ETK. Incidence of work disability pension due to mental disorders among young adults. Unpublished statistics. Helsinki: ETK, 2017a.

ETK. Disability pension. Helsinki: ETK, 2017b. Available online at: ‹http://www.etk.fi/en/the-pension-system-2/the-pension-system/pension-benefits/earnings-related-pensions/disability-pension/#sick›. Accessed 10 Dec 2017.

EVA. EVA Analyysi: Hukassa. Keitä ovat syrjäytyneet nuoret. Helsinki: EVA, 1 Feb 2012. Available online at: ‹http://www.eva.fi/blog/2012/02/01/eva-analyysi-hukassa-keit%c3%a4-ovat-syrj%c3%a4ytyneet-nuoret/›. Accessed 2 Apr 2018.

Eyre O, Thapar A. Common adolescent mental disorders. Transition to adulthood. Lancet 2014; 383: 1366–1368.

Fergusson DM, Woodward LJ. Mental health, educational, and social role outcomes of adolescents with depression. Arch Gen Psychiatry 2002; 59: 225–231.

Fergusson DM, Boden JM, Horwood J. Recurrence of major depression in adolescence and early adulthood, and later mental health, educational and economic outcomes. Brit J Psychiatry 2007; 191: 335–342.

French L, Gray C, Leonard G et al. Early cannabis use, polygenic risk score for schizophrenia and brain maturation in adolescence. JAMA Psychiatry 2015; 72: 1002–1011.

Gibb SJ, Fergusson DM, Horwood LJ. Burden of psychiatric disorder in young adulthood and life outcomes at age 30. Br J Psychiatry 2010; 197: 122–127.

Gore FM, Bloem PNJ, Patton GC, Ferguson J et al. Global burden of disease in young people aged 10–24 years. A systematic analysis. Lancet 2011; 377: 2093–2102.

Harkonmäki K, Korkeila K, Vahtera J et al. Childhood adversities as predictor of disability retirement. J Epidemiol Community Health 2007; 61: 479–484.

Harvey SB, Modini M, Joyce S et al. Can work make you mentally ill? A systematic meta-review of work-related risk factors for common mental health problems. Occup Environ Med 2017; 74: 301–310.

Helve H, Evans K. Youth and work transitions in changing social landscapes. London: Tufnell Press, 2013: 31–44.

Hertzman C, Power C. Health and human development. Understandings from life-course research. Dev Neuropsychol 2003; 24: 719–744.

Hiske LH, Koeter MWJ, Schene AH. Predictors of long-term return to work and symptom remission in sick-listed patients with major depression. J Clin Psychiatry 2012; 73 (8): e1048–1055.

Holmström B, Korkman S, Pohjola M. The nature of Finland's economic crisis and the prerequisites for growth. Helsinki: VNK, 2014. Available online at: ‹http://vnk.fi/documents/10616/339615/The+nature+of+Finland%E2%80%99s+economic+crisis+and+the+prerequisites+for+growth+-memorandum/07f3b69a-25cb-4347-a713-b0f91c23a931›. Accessed 16 Mar 2017.

Honkonen T, Aro T, Isometsä E et al. Quality of treatment and disability compensation in depression. Comparison of 2 nationally representative samples with a 10-year interval in Finland. J Clin Psychiatry 2007; 68: 1886–1893

Isometsä E. Transkraniaalinen magneettistimulaatio depression akuuttihoidossa. Näytönastekatsaus. [Transcranial magnetic stimulation in the acute treatment of depression. A review of the evidence.] Helsinki: Duodecim, Käypä hoito, 2014. Available online at: ‹www.kaypahoito.fi›. Accessed 13 Nov 2017.

Isometsä E, Koponen H. Sähköhoito (ECT) lääkeresistentissä depressiossa. Näytönastekatsaus. [Electroconvulsive therapy (ECT) in medicine-resistant depression. A review of the evidence.] Helsinki: Duodecim, Käypä hoito, 2014. Available online at: ‹www.kaypahoito.fi›. Accessed 13 Nov 2017.

Jessor R, Donovan J, Costa FM. Beyond adolescence. Problem behavior and young adult development. New York, NY: University of Cambridge, 1994.

Johansson G, Lundberg O, Lundberg I. Return to work and adjustment latitude among employees on long-term sickness absence. J Occup Rehabil 2006; 16: 185–195.

Juvonen-Posti P, Joensuu M, Reiman A et al. Työkykyjohtaminen. Johdettua yhdessä tekemistä. Tapaustutkimus johtamismenettelystä ja taloudellisesta vaikuttavuudesta kunnallisessa liikelaitoksessa. [Work ability management. Case study on management and effects in a municipal utility.] Helsinki: TTL, 2014.

Kaltenbrunner Bernitz B, Grees N, Jacobson Randers M et al. Young adults on disability benefits in 7 countries. Scand J Public Health 2013; 41 (Suppl 12): 3–26.

Kaltiala-Heino R, Rimpelä M, Marttunen M. Bullying and suicidal ideation in Finnish adolescents. School survey. BMJ 1999; 319: 348–351.

Kaltiala-Heino R, Fröjd S, Marttunen M. Involvement in bullying and depression in a 2-year follow-up in middle adolescence. Eur Child Adolesc Psychiatry 2010; 19 (1): 45–55.

Kasteenpohja T, Marttunen M, Aalto-Setälä T et al. Treatment received and treatment adequacy of depressive disorders among young adults in Finland. BMC Psychiatry 2015; 15: 47.

Kasteenpohja T, Marttunen M, Aalto-Setälä T, Perälä J, Saarni SI, Suvisaari J. Treatment adequacy of anxiety disorders among young adults in Finland. BMC Psychiatry 2016; 16: 63.

Kela. Days of sickness absence compensated by Social Insurance Institution of Finland in 2015. Unpublished statistics. Helsinki: Kela, 2016.

Kela. Disability pension and rehabilitation subsidy. Helsinki: Kela, 2017a. Available online at: ‹https://www.kela.fi/web/en/disability-pension-and-rehabilitation-subsidy›. Accessed 15 Dec 2017.

Kela. Työllistymistä tukeva ammatillinen kuntoutus. [Vocational rehabilitation to support employment] Helsinki: Kela, 2017b. Available online at: ‹https://www.kela.fi/tyollistymista-edistava-ammatillinen-kuntoutus›. Accessed 20 Dec 2017.

Kela. Rehabilitative psychotherapy. Helsinki: Kela, 2018. Available online at: ‹https://www.kela.fi/web/en/rehabilitative-psychotherapy›. Accessed 5 Mar 2018.

Kerätär R. Kun katsoo kauempaa, näkee enemmän. Monialainen työkyvyn ja kuntoutustarpeen arviointi pitkäaikaistyöttömillä. [You'll see more when you look from a distance. Multidimensional assessment of work ability and need for rehabilitation among long-term unemployed.] Oulu: University of Oulu, Acta Universitatis Ouluensis D 1340, 2016.

Kessler RC, Aveneoli S, Costello EJ et al. Prevalence, persistence, and sociodemographic correlates of DSM-IV disorders in the national comorbidity survey replication adolescent supplement. Arch Gen Psychiatry 2012; 69: 381–389.

Kim-Cohen J, Caspi A, Moffitt TE et al. Prior juvenile diagnoses in adults with mental disorder. Developmental follow-back of a prospective-longitudinal cohort. Arch Gen Psychiatry 2003; 60: 709–717.

Kivekäs J, Hannu T, Rokkanen T et al. Pitkäaikaisen työkyvyttömyyden arviointi kannattaa keskittää työterveyshuoltoon. Suom Lääkäril 2012; 67: 2229–2233.

Klomek AB, Sourander A, Kumpulainen K et al. Childhood bullying as a risk factor for later depression and suicidal ideation among Finnish males. J Affect Disord 2008; 109 (1–2): 47–55.

Knardahl S, Johannessen HA, Sterud T et al. The contribution from psychological, social, and organizational work factors to risk of disability retirement. A systematic review with meta-analysis. BMC Public Health 2017; 17: 176.

Knekt P, Lindfors O, Laaksonen M. Helsingin psykoterapiatutkimus. Psykoterapioiden vaikuttavuus viiden vuoden seurannassa. [The efficacy of psychotherapies in five years follow-up]. Helsinki: THL, Raportti 33, 2010.

Kuh D, Ben-Schlomo Y, Lynch J et al. Life course epidemiology. J Epidemiol Community Health 2003; 57: 778–783.

Laaksonen M, Gould R. Return to work after temporary disability pension in Finland. J Occup Rehabil 2015; 25: 471–480.

Laaksonen M, Mastekaasa A, Martikainen P. Gender differences in sickness absence. The contribution of occupation and workplace. Scand J Work Environ Health 2010; 36: 394–403.

Lagerveld S, Houtman I. Return to work after sick leave due to mental health problems. OSHWiki, 2017. Available online at: ‹https://oshwiki.eu/wiki/Return_to_Work_after_sick_leave_due_to_mental_health_problems›. Accessed 22 Sep 2017.

Lagerveld SE, Bültmann U, Franche RL et al. Factors associated with work participation and work functioning in depressed workers. A systematic review. J Occup Rehabil 2010; 20: 275–292.

Lagerveld SE, Blonk RWB, Brenninkmeijer V et al. Work-focused treatment of common mental disorders and return to work. A comparative outcome study. J Occup Health Psychol 2012; 17: 220–234.

Lanza ST, Collins LM, Lemmon DR et al. PROC LCA. A SAS procedure for latent class analysis. Struct Equ Modeling 2007; 14: 671–694.

Lappalainen K. Työttömien työelämävalmiuksien tukeminen. Painopisteenä terveydenhuolto ja verkostoyhteistyö. [Supporting preparedness for work life among the unemployed. Focus on health care and network communities]. Kuopio: University of Eastern Finland, Publications of the University of Eastern Finland, Dissertations in Health Sciences 410, 2017.

Laukkanen E, Hintikka JJ, Kylmä J et al. A brief intervention is sufficient for many adolescents seeking help from low threshold adolescent psychiatric services. BMC Health Serv Research 2010; 10: 261.

Lederer V, Loisel P, Rivard M et al. Exploring the diversity of conceptualizations of work (dis)ability. A scoping review of published definitions. J Occup Rehabil 2014; 24: 242–267.

Lindgren A, Werbart A, Philips B. Long-term outcome and post-treatment effects of psychoanalytic psychotherapy with young adults. Psychol Psychother 2010; 83: 27–43.

Lähteenmaa J. ‘Agency vs. structure’. A view of youth unemployment during the current recession in Finland. In: Helve H, Evans K. Youth and work transitions in changing social landscapes. London: Tufnell Press, 2013: 68–81.

Madsen IEH, Nyberg ST, Magnusson-Hanson LL et al. Job strain as a risk factor for clinical depression. A systematic review and meta-analysis with additional individual participant data. Psychol Med 2017: 47: 1342–1356.

Mantere O, Suominen K, Leppämäki S et al. The clinical characteristics of DSM-IV bipolar I and II disorders. Baseline findings from the Jorvi Bipolar Study (JoBS). Bipolar Disord 2004; 6: 395–405.

Mantere O, Melartin TK, Suominen K et al. Differences in Axis I and II comorbidity between bipolar I and II disorders and major depressive disorder. J Clin Psychiatry 2006; 67: 584–593.

Markkula N, Suvisaari J. Masennushäiriöiden esiintyvyys, riskitekijät ja ennuste. [The prevalence, risk factors, and prognosis in depressive disorders.] Duodecim 2017; 133: 275–282.

Marshall T, Goldberg RW, Braude L et al. Supported employment. Assessing the evidence. Psychiatr Serv 2014; 65 (1): 16–23.

Mathers DC, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. PLoS Med 2006; 3 (11): e442.

McNutt L-A, Wu C, Xue X, Hafner JP. Estimating the relative risk in cohort studies and clinical trials of common outcomes. Am J Epidemiol 2003; 157: 940–943.

Mykletun A, Overland S, Dahl AA et al. A population-based cohort study on the effect of common mental disorders on disability pension awards. Am J Psychiatry 2006; 163: 1412–1418.

Noordik E, van der Klink JJ, Geskus RB et al. Effectiveness of an exposure-based return-to-work program for workers on sick leave due to common mental disorders. A cluster-randomized controlled trial. Scand J Work Environ Health 2013; 39: 144–154.

Nylund KL, Asparouhov T, Muthen BO. Deciding on the number of classes in latent class analysis and growth mixture modelling. A Monte Carlo simulation study. Struct Equ Modeling 2007; 14: 535–569.

Ohjaamot. Elämässä eteenpäin. Ohjausta alle 30-vuotiaille. Helsinki: TEM, 2017. Available online at: ‹http://ohjaamot.fi/etusivu›. Accessed 10 Dec 2017.

Oquendo MA, Currier D, Liu SM et al. Increased risk for suicidal behavior in comorbid bipolar disorder and alcohol use disorders. Results from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). J Clin Psychiatry 2010; 71: 902–909.

Paananen R, Gissler M. Cohort profile. The 1987 Finnish birth cohort. Int J Epidemiol 2012; 41: 941–945.

Paananen R, Ristikari T, Merikukka M et al. Lasten ja nuorten hyvinvointi. Kansallinen syntymäkohortti 1987 -tutkimusaineiston valossa. [Wellbeing of children and adolescents in Finnish birth cohort 1987]. Helsinki: THL, Raportti 52, 2012.

Patel V, Flisher AJ, Hetrick S et al. Mental health of young people. A global public-health challenge. Lancet 2007; 369: 1302–1313.

Patton GC, Coffey C, Romaniuk H et al. The prognosis of common mental disorders in adolescents. A 14-year prospective cohort study. Lancet 2014; 383: 1404–1411.

Paunio T. Olemme samanlaisia, olemme erilaisia. Perimä, ympäristö ja aivojen muovautuvuus yksilöllisen sopeutumisen taustalla. [Genome, environment, and plasticity of the brain underlying individual adaptation]. Duodecim 2011; 127: 2608–2613.

Paus T, Keshavan M, Giedd JN. Why do many psychiatric disorders emerge during adolescence? Nature Rev Neurosci 2008; 9: 947–957.

Perälä J, Suvisaari J, Saarni SI et al. Lifetime prevalence of psychotic and bipolar I disorders in a general population. Arch Gen Psychiatry 2007; 64: 19–28.

Piet J, Hougaard E, Hecksher MS et al. Randomized pilot study of mindfulness-based cognitive therapy and group cognitive-behavioral therapy for young adults with social phobia. Scand J Psychol 2010; 51: 403–410.

Pirkola SP, Isometsä E, Suvisaari J et al. DSM-IV mood-, anxiety-, and alcohol use disorders and their comorbidity in the Finnish general population. Results from the Health 2000 Study. Soc Psychiatry Psychiatr Epidemiol 2005; 40 (1): 1–10.

Polvinen A, Laaksonen M, Gould R et al. The contribution of major diagnostic causes to socioeconomic differences in disability retirement. Scand J Work Environ Health 2014; 40: 353–360.

Pomaki G. Return-to-work strategies for employees with mental health conditions. Benefits Q 2017; 33: 50–55.

Rahman S, Mittendorfer-Rutz E, Alexanderson K et al. Disability pension due to common mental disorders and healthcare use before and after policy changes. A nationwide study. Eur J Public Health 2017; 27: 90–96.

Roza SJ, Hofstra MB, van der Ende J et al. Stable prediction of mood and anxiety disorders based on behavioral and emotional problems in childhood. A 14-year follow-up during childhood, adolescence, and young adulthood. Am J Psychiatry 2003; 160: 2116–2121.

Rutter M, Kim-Cohen J, Maughan B. Continuities and discontinuities in psychopathology between childhood and adult life. J Child Psychol Psychiatry 2006; 47: 276–295.

Salkind NJ. Erik Erikson's focus on psychosocial development. In: Salkind NJ, ed. An introduction to theories of human development. Thousand Oaks, CA: Sage, 2004: 139–156.

Sidorchuk A, Hemmingsson T, Romelsjo A et al. Alcohol use in adolescence and risk of disability pension. A 39-year follow-up of a population-based conscription survey. PLoS One 2012; 7 (8): e42083.

Statista. Youth unemployment rates in EU-countries. Hamburg: Statista, 2017. Available online at: ‹https://www.statista.com/statistics/266228/youth-unemployment-rate-in-eu-countries/›. Accessed 15 Dec 2017.

Statistics Finland. Recipients of disability pension 2016. Helsinki: Statistics Finland, 2017. Available online at: ‹http://findikaattori.fi/fi/76›. Accessed 29 Dec 2017.

STM. Career opportunities for people with partial work ability. Helsinki: STM, 2017. Available online at: ‹http://stm.fi/en/career-opportunities-for-people-with-partial-work-ability›. Accessed 13 Dec 2017.

Suijkerbuijk YB, Schaafsma FG, van Mechelen JC et al. Interventions for obtaining and maintaining employment in adults with severe mental illness, a network meta-analysis. Cochrane Database Syst Rev 2017; 12; 9: CD011867.

Sumanen H, Lahelma E, Lahti E et al. Educational differences in sickness absence among young employees from 2002 to 2013 in Helsinki, Finland. BMJ Open 2016; 6 (5): e008550.

Suvisaari J, Aalto-Setälä T, Tuulio-Henrikson A et al. Mental disorders in young adulthood. Psychol Med 2009; 39: 287–299.

TELA. Työkyvyttömyyseläkkeet 2015. [Work disability pensions 2015.] Helsinki: TELA, 2015. Available online at: ‹https://www.tela.fi/instancedata/prime_product_julkaisu/tela/embeds/telawwwstructure/20329_Tyokkyvyttomyyselakkeet_2015_kuvasarja.pdf›. Accessed 29 Dec 2017.

THL. Functioning measures database Toimia. Helsinki: THL, 2018. Available online in Finnish at: ‹http://www.thl.fi/toimia/tietokanta›. Accessed 5 Apr 2018.

Trivedi MH, Greer TL. Cognitive dysfunction in unipolar depression. Implications for treatment. J Affect Disord 2014; 152–154: 19–27.

Tuisku K, Joutsenniemi K, Rentto T et al. Resource oriented assessment of working ability in psychiatry. Psychiatr Fenn 2015; 46: 125–145.

Turner J, Loyed DA. Lifetime traumas and mental health. The significance of cumulative adversity. J Health Soc Behav 1995; 36: 360–376.

Upmark M, Thundal K-L. An explorative, population-based study of female disability pensioners. The role of childhood conditions and alcohol abuse/dependence. Scand J Public Health 2002; 30 (3): 191–199.

Upmark M, Möller J, Romelsjö A. Longitudinal, population-based study of self-reported alcohol habits, high levels of sickness absence, and disability pensions. J Epidemiol Community Health 1999a; 53: 223–229.

Upmark M, Lundberg I, Sadigh J et al. Psychosocial characteristics in young men as predictors of early disability pension with a psychiatric diagnosis. Soc Psychiatry Psychiatr Epidemiol 1999b 34: 533–540.

Upmark M, Lundberg I, Sadigh J, Bigert C. Conditions during childhood and adolescence as explanations of social class differences in disability pension among young men. Scand J Public Health 2001; 29 (2): 96–103.

Valtonen H. Kaksisuuntainen mielialahäiriö ja itsetuhokäyttäytyminen. Lisätietoa. [Bipolar disorder and suicidal behaviour. Additional information.] Helsinki: Duodecim, Käypä hoito, 2013. Available online at: ‹www.kaypahoito.fi›. Accessed 18 Oct 2017.

Vancea M, Utzet M. How unemployment and precarious employment affect the health of young people. A scoping study on social determinants. Scand J Public Health. 2017; 45 (1): 73–84.

Viner RM, Ozer EM, Denny S et al. Adolescence and the social determinants of health. Lancet 2012; 379: 1641–1652.

Virtanen M, Kawachi I, Oksanen T et al. Socio-economic differences in long-term psychiatric work disability. Prospective cohort study of onset, recovery and recurrence. Occup Environ Med 2011; 68: 791–798.

Virtanen P, Hammarström A, Janlert U. Children of boom and recession and the scars to the mental health. A comparative study on the long-term effects of youth unemployment. Int J Equity Health 2016; 15: 14.

de Vries H, Fishta A, Weikert B et al. Determinants of sickness absence and return to work among employees with common mental disorders. A scoping review. J Occup Rehabil 2017; Oct 4: doi: 10.1007/s10926-017-9730-1. [Epub ahead of print.]

Väänänen J-M, Marttunen M, Helminen M et al. Low perceived social support predicts later depression but not social phobia in middle adolescence. Health Psychol Behav Med 2014; 2: 1023–1037.

Whiteford HA, Degenhart L, Rehm J et al. Global burden of disease attributable to mental and substance use disorders. Findings from the Global Burden of Disease Study. Lancet 2013; 382: 1575–1586.

WHO. The ICD-10 classification of mental and behavioral disorders. Geneva: WHO, 1993. Available online at: ‹http://www.who.int/classifications/icd/en/bluebook.pdf›. Accessed 10 Oct 2017.

WHO. Mental health. Geneva: WHO, 2014. Available online at: ‹http://www.who.int/features/factfiles/mental_health/en/›. Accessed 5 Apr 2017.

WHO. Mental disorders. Geneva: WHO, 2014. Available online at: ‹http://www.who.int/mental_health/management/en/›. Accessed 15 Dec 2017.

Widom CS, DuMont K, Czaja SJ. A prospective investigation of major depressive disorder and comorbidity in abused and neglected children grown up. Arch Gen Psychiatry 2007; 64 (1): 49–56.

RECENT PUBLICATIONS IN THE STUDIES IN SOCIAL SECURITY AND HEALTH SERIES

151 Pasternack I, Fogelholm C, Koskinen E. Selkäydinvammapotilaiden kuntoutuksen vaikuttavuus. 2018. ISBN 978-952-284-042-4 (print), ISBN 978-952-284-045-5 (pdf).

150 Koskinen H. Pharmaceutical expenditures, the reference price system and competition in the pharmaceutical market. A register study. 2018. ISBN 978-952-284-039-4 (print), 978-952-284-040-0 (pdf).

149 Tervola J. Supporting gender equality and integration. Immigrant families' child care choices in the Nordic policy context. 2018. ISBN 978-952-284-035-6 (print), 978-952-284-036-3 (pdf).

148 Pekola P. The effects of competition and regulation on quality in physiotherapy. 2018. ISBN 978-952-284-033-2 (print), 978-952-284-034-9 (pdf).

147 Romakkaniemi M, Lindh J, Laitinen M. Nuorten aikuisten osallisuus ja sosiaalinen kuntoutus Lapissa. 2018. ISBN 978-952-284-031-8 (print), ISBN 978-952-284-032-5 (pdf).

146 Aaltonen K. Affordability of medicines from the pharmaceutical system perspective. Comparative analysis of Finland and New Zealand. 2017. ISBN 978-952-284-019-6 (print), 978-952-284-020-2 (pdf).

145 Rintala A, Hakala S, Sjögren T, toim. Etäteknologian vaikuttavuus liikunnallisessa kuntoutuksessa. Järjestelmällinen kirjallisuuskatsaus ja meta-analyysi. 2017. ISBN 978-952-284-017-2 (print), 978-952-284-018-9 (pdf).

144 Harkko J, Lehikoinen T, Lehto S, Ala-Kauhaluoma M. Onko osa nuorista vaarassa syrjäytyä pysyvästi? Nuorten syrjäytymisriskit ja aikuisuuteen siirtymistä tukeva palvelujärjestelmä. 2016. ISBN 978-952-284-009-7 (print), 978-952-284-010-3 (pdf).

143 Pitkänen T, Holopainen A, Jokela K, Kaskela T, Levola J, Tourunen J. Aivotoiminnan häiriöiden yhteydessä yleisesti koetut psykososiaaliset vaikeudet. PARADISE24-kyselyn tutkimusperusta. 2016. ISBN 978-952-284-007-3 (print), ISBN 978-952-284-008-0 (pdf).

142 Merikoski M, Enlund H. Biologisten lääkkeiden käyttöönotto ja käyttö Suomessa. Terveydenhuollon käytäntöjä ja näkökulmia. 2016. ISBN 978-951-669-997-7 (print), ISBN 978-951-669-998-4 (pdf).

Mental disorders are the leading cause of work disability among young adults in Finland. Young adults' mental health disabilities have considerable consequences on the individual, societal, and financial level. Despite the increase in young adults' work disability due to mental disorders, little is known about this group of people or the measures that could help them return to the labour market.

This study examines young adults who were granted temporary work disability pension due to mental disorders in Finland: their background, their clinical profile, the interventions targeted toward them, and their employment, over a period of five years.

The results show that the most common diagnoses were depressive mood disorders, schizophrenia, schizotypal and delusional disorders, and mania or bipolar disorder. One out of five young adults was employed at the end of the five-year follow-up, while almost half of them were on full disability pension. A combination of psychotherapeutic and work-oriented interventions is likely to be beneficial for the future employment of young adults on disability pension.

The Social Insurance Institution of Finland
Kela Research
Phone +358 20 634 11
julkaisut@kela.fi
www.kela.fi/research
www.kela.fi/tutkimus
www.fpa.fi/forskning

ISBN 978-952-284-044-8 (print)
ISBN 978-952-284-045-5 (pdf)
ISSN-L 1238-5050
ISSN 1238-5050 (print)
ISSN 2323-7724 (pdf)