Tampere University

KIRSTI NURMELA

Identification of Mental Health Disorders among Long-term Unemployed People and Their Ability to Work

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ACADEMIC DISSERTATION
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Work is a person's strongest tie to reality.

Sigmund Freud

Dedication

This dissertation is dedicated to all long-term unemployed people with mental health disorders in Finland.

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Tampere, February 2021

Kirsti Nurmela

ABSTRACT

The association of unemployment with mental health disorders has been convincingly demonstrated in earlier studies. There is ample evidence of both health selection and social causation mechanisms, whereas the research on the identification of mental health disorders among unemployed people is scanty. Also, little attention has been paid in earlier research to the ability to work of unemployed people and to its assessment. Their health care attendance may be one crucial factor behind both the identification of mental health disorders and the (lacking) assessment of work ability among unemployed people. Previous findings on the health care attendance of unemployed people have been inconsistent with both increased and decreased visits to health care reported.

The material of this register study comprised the health records of the Eligibility for a Disability Pension (EDIPE) project in the Finnish city of Tampere from 2001 to 2007. All participants of the EDIPE project were long-term (over one year) unemployed people with work disabilities and low employability. The national level EDIPE project was launched on the assumption that a notable proportion of long-term unemployed people are incapable of work and would be entitled to a disability pension.

The studies of which this dissertation is composed investigated the identification of alcohol-related and depressive disorders in the health and employment services in general and in the EDIPE process. The identification of the disorders was also investigated in relation to disability pensions granted. The association of the different health care attendance styles was studied in relation to alcohol-related and depressive disorders.

The findings of the study show that a notable proportion of long-term unemployed people with alcohol-related or mood disorders lack the ability to work. However, their impaired working ability seems to go unheeded in health care although there are also signs in some respects of an adequate identification and well-functioning service system. The alcohol-related disorders were identified and diagnosed in health care among those long-term unemployed people who were granted a disability pension due to EDIPE examinations. The proportion of those people with separate depression without somatic comorbidity was scanty in the study

register. Indirectly, it could be interpreted that those long-term unemployed people with eligibility for a disability pension due to depression are adequately identified in regular health care since depression is nowadays the single most frequent reason for work disability in Finland (Finnish Centre for Pensions, 2019).

The alcohol-related disorders seem to be identified in health care among those long-term unemployed people who would be eligible for a disability pension. However, their working ability is not assessed. The employment authorities seem to be aware of the need for work ability assessment. They may not, however, offer significant assistance in the identification of alcohol-related disorders among those long-term unemployed people who would be entitled for a disability pension (Study I). Also, a notable proportion of the depressive disorders remains unidentified among those long-term unemployed people who would be eligible for the disability pension (Study III). This may be explained at least partly by the duration of unemployment, as the identification of depression decreases as the unemployment spell grows longer (Study II). The identification of depressive and alcohol-related disorders or their initiation working ability assessment processes may also be associated with the faltering or marginalised health care attendance style among long-term unemployed people with alcohol-related or depressive disorders (Study IV).

According to the findings of the study health care services allocated especially for unemployed people are recommended. Also, professionals working with long-term unemployed people should be trained to be more perceptive in identifying mental health disorders among their clients and screening for depression should be considered, especially among those long-term unemployed with impaired work ability and physical disorders. In future artificial intelligence applications could possibly be included in the digital patient management systems to enhance the identification of health care attendance styles to screen for people at increased risk for mental health disorders, work disabilities and of drifting into long-term unemployment.

TIIVISTELMÄ

Työttömyyden ja mielenterveyden häiriöiden välinen yhteys on osoitettu luotettavasti useissa aiemmissa tutkimuksissa. Taustamekanismeina on runsaasti aiempaa tutkimusnäyttöä sekä heikentyneestä terveydentilasta aiheutuvasta valikoitumisesta työttömyyteen että työttömyyden aiheuttamasta sosiaalisesta kuormituksesta. Sen sijaan tutkimustieto työttömien mielenterveyden häiriöiden tunnistamisesta, työttömien työkyvystä ja työttömien työkyvyn arvioinnista on niukkaa. Työttömien terveyspalveluiden käyttötavat saattavat selittää sekä mielenterveyden häiriöiden tunnistamiseen että työkykyyn ja sen arviointiin liittyviä ongelmia. Aiempi tutkimustieto työttömien terveyspalvelujen käytöstä on ristiriitaista. Sekä lisääntynyttä että vähentynyttä terveyspalvelujen käyttöä on raportoitu.

Tämän rekisteritutkimuksen aineisto on kerätty Eläkemahdollisuuksien arvio -hankkeessa (ELMA, engl. EDIPE) v. 2001-07 Tampereella kertyneestä asiakirjatiedosta. ELMA-hankkeeseen lähetetyt ihmiset olivat pitkäaikaistyöttömiä (yli vuoden kestänyt työttömyys), joilla oli todettu työkykyä alentavia sairauksia ja jotka olivat vaikeasti työllistettäviä. Kansallisen ELMA-hankkeen lähtökohtana toimi oletus, jonka mukaan pitkäaikaistyöttömien joukossa on useita ihmisiä, jotka tosiasiallisesti ovat työkyvyttömiä ja olisivat oikeutettuja työkyvyttömyyseläkkeeseen.

Tutkimuksen osatöissä tarkasteltiin alkoholi- ja masennushäiriöiden tunnistamista terveys- ja työllisyyspalveluissa sekä ELMA-projektissa. Kyseisten häiriöiden tunnistamista tutkittiin myös suhteessa työkyvyttömyyseläkkeen myöntämiseen. Lisäksi selvitettiin erityyppisiä terveyspalveluiden käyttötapoja ja niiden yhteyttä alkoholi- ja masennushäiriöihin.

Saatujen tulosten mukaan merkittävällä osalla niistä pitkäaikaistyöttömistä, jotka kärsivät alkoholi- tai mielialahäiriöstä, työkyky ei ole riittävä työllistymistä ajatellen. Kuitenkin heidän työkyvyttömyytensä vaikuttaa jäävän tunnistamatta terveydenhuollossa. Toisaalta tutkimuksessa tuli esiin myös kyseisten häiriöiden asianmukaista tunnistamista ja viitteitä hyvin toimivasta terveydenhuoltojärjestelmästä. Alkoholihäiriö oli tunnistettu ja diagnosoitu asianmukaisesti terveydenhuollossa heillä, joille myönnettiin työkyvyttömyyseläke ELMA-projektin kautta. Asianmukaiseen tunnistamiseen viittaa epäsuorasti myös se,

että pelkästä masennushäiriöstä kärsiviä oli aineistossa varsin vähän, vaikka depressio on nykyisin jo yleisin yksittäinen työkyvyttömyyden aiheuttaja Suomessa (Eläketurvakeskus, 2019). Sen sijaan ELMA-arvioon ohjautui sellaisia pitkäaikaistyöttömiä, joilla esiintyi samanaikaisesti depressio ja somaattisen terveydentilan ongelma. Tämän ilmiön sopisi selittämään se, että pysyvän työkyvyttömyyden aiheuttamasta masennushäiriöstä, ilman somaattista komorbiditeettia, kärsivät ohjautuvat työkyvyttömyyseläkkeelle tavanomaisen terveyspalvelujärjestelmän kautta.

Vaikka alkoholihäiriöt tunnistetaan asianmukaisesti terveydenhuollossa niillä pitkäaikaistyöttömillä, jotka olisivat oikeutettuja työkyvyttömyyseläkkeeseen, työkyvyn arvio jää kuitenkin puuttumaan. Sen sijaan työ- ja elinkeinoviranomaiset tunnistavat työkyvyn arvioinnin tarpeen, mutta eläkkeeseen oikeuttavia päihdehäiriöitä vain niukasti (osatutkimus I). Työkyvyttömyyseläkkeeseen oikeutettujen pitkäaikaistyöttömien depressio näyttää jäävän paljolti tunnistamatta terveydenhuollossa (osatutkimus III). Ilmiö saattaa selittyä myös työttömyyden kestolla, sillä depression tunnistaminen näyttäisi vähenevän työttömyyden pitkittyessä (osatutkimus II). Tutkimuksen perusteella mielenterveyden häiriöiden tunnistamisen ja työkyvyn arvioinnin ongelmat saattavat liittyä myös pitkäaikaistyöttömien tapoihin asioida terveyspalveluissa. Niillä pitkäaikaistyöttömillä, jotka kärsivät alkoholi- tai masennushäiriöstä, oli kohonnut riski käyttää terveyspalveluja katkeilevaan tai syrjäytyneeseen tapaan (osatutkimus IV).

Tutkimustulosten perusteella suositellaan erityisiä, työttömille suunnattuja, terveyspalveluja osaksi terveydenhuoltojärjestelmää. Myös täydennyskoulutus mielenterveyden häiriöiden tunnistamisesta pitkäaikaistyöttömien parissa toimiville viranomaisille olisi tarpeen. Pitkäaikaistyöttömien depression seulontaa tulisi harkita erityisesti niiden pitkäaikaistyöttömien keskuudessa, jotka kärsivät somaattisista sairauksista ja joiden työkyky on alentunut. Tulevaisuudessa tekoälysovelluksia voitaisiin kehittää osana potilastietojärjestelmää tunnistamaan niitä terveyspalveluiden käyttötapoja, jotka saattavat olla yhteydessä lisääntyneeseen riskiin ajautua pitkäaikaistyöttömyyteen, työkyvyttömyyteen ja mielenterveyden häiriöiden kehittymiseen.

CONTENTS

ABBREVIATIONS

AI	Artificial Intelligence
AUD	Alcohol Use Disorder
AUDIT	Alcohol Use Disorders Identification Test
BDI	Beck Depression Inventory
BMI	Body Mass Index
CI	Confidence Interval
CMD	Common Mental Disorder
CRP	C-Reactive Protein
DALY	Disability Adjusted Life Years
DM	Diabetes Mellitus
DP	Disability Pension
EDIPE	Eligibility for a Disability Pension
e.g.	Exempli Gratia (in English, for example)
EHSS	European Health Survey of Spain
ELMA	Eläkemahdollisuuksien arvio (in English, EDIPE, see above)
EU	European Union
GEDA	Gesundheit in Deutschland Aktuell (in English, German Health Update Study)
GP	General Practitioner
HC	Health Care
HHD	Harmful or Hazardous Drinking
HR	Hazard Ratio
i.a.	Inter Alia (in English, amongst other things)
ICD-10	International Classification of Diseases Tenth Revision
i.e.	Id Est (in English, that is)
ILO	International Labour Organisation
LTL	Leucocyte Telomere Length
MDD	Major Depressive Disorder
MRI	Magnetic Resonance Imaging
NEET	Not in Employment, Education or Training

NEMESIS-2	The Second Netherlands Mental Health Survey and Incidence Study
OECD	Organisation for Economic Cooperation and Development
OR	Odds Ratio
PTT	Development Partnership Project on Health Care for the Long-term unemployed
QALY	Quality Adjusted Life Years
RRR	Relative Risk Ratio
SD	Standard Deviation
SDS	Sheehan Disability Scale
SES	Socio-Economic Status
SOFAS	Social and Occupational Functioning Assessment Scale
T2D	Type 2 Diabetes
TAKK	Tampereen aikuiskoulutuskeskus (in English, Tampere Adult Education Centre)
UK	United Kingdom
USA	United States of America
WAI	Work Ability Index
WHO	World Health Organization

ORIGINAL PUBLICATIONS

I Nurmela K, Heikkinen V, Hokkanen R, Ylinen A, Uitti J, Mattila A, Joukamaa M, Virtanen P. Identification of alcohol abuse and transition from long-term unemployment to disability pension. Scand J Public Health. 2015;43(5):518–24.

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1 INTRODUCTION

Mental health is a key element of human well-being. "There is no health without mental health". This famous citation was based on the notion of the first Director-General of the World Health Organization (WHO), a psychiatrist, Dr Brock Chisholm: "Without mental health there can be no true physical health" (Kolappa, Henderson, & Kishore, 2013). With good reason it can be argued that work is one of the most essential subjects connected to mental health and well-being as Jahoda (1981) and Warr (1987) revealed with their classical models of the multidimensional benefits of work for people (Jahoda, 1981; Warr, 1987).

Equality between people and groups have not been reached despite the vast progress of mankind during the last century. Health inequalities are demonstrably remarkable, even in high-income countries (Marmot, 2015). One of the most essential social determinants behind the health inequalities in western welfare societies is unemployment (Puig-Barrachina, Malmusi, Martínez, & Benach, 2011). The economic recession in the middle of the 1990s brought structural unemployment into Finland (Pensola, Järvikoski, & Järvisalo, 2008). Since then the high rate of long-term unemployment has been one of the crucial challenges for Finnish society (Government Programme. Marin's Government, 2019).

Some socioeconomic background factors have been identified as either risk factors or protective factors for unemployment in the lifecycle. High parental socio-economic status and good health in childhood act as protective factors against the risk of becoming unemployed during the life-course (Brandt & Hank, 2014). Childhood adversities increase the risk for later unemployment and several spells of unemployment seems to have a scarring effect: Periods of unemployment in early adulthood or in middle age increases the risk of unemployment after fifty years of age (Brandt & Hank, 2014). Aggressive behaviour in childhood, as an indicator of low self-control, increases the risk for ending up long-term unemployment in adulthood via maladaptive mechanisms (Kokko & Pulkkinen, 2000).

The concept of employability is also closely linked to the concept of unemployment. Employability refers to the extensive relationship between job seekers' characteristics and demands of the work. Employability has been divided

into three main dimensions: individual, organizational and educational & governmental (Guilbert, Bernaud, Gouvernet, & Rossier, 2016). Health is thus only one factor determining individual employability. Guilbert et al. (2016) defined employability as the possibility to access or remain in a suitable job, which is based on the dynamic and evolving interactions between government and education policies. As well as individual characteristics, organizational strategy, and social, economic, cultural and technological factors also affect employability (Guilbert et al., 2016). With respect to this study, the study population did not suffer only from health problems and long-term unemployment with resulting social problems, but also from major employability problems in their background, e.g. restructuring of the industries as a consequence of economic recession in the 1990s.

A considerable number of studies have investigated the cause-effect relationship between health problems and unemployment. According to the literature, both health selection and social causation mechanisms seem to play a decisive role in the high incidence of health problems among unemployed people (Alavinia & Burdorf, 2008; Bartley, 1994; Puig-Barrachina et al., 2011). Certain health problems, such as musculoskeletal and mental health problems, are more pronouncedly connected to long-term unemployment (Herbig, Dragano, & Angerer, 2013; Laaksonen, Kaaria, Leino-Arjas, & Lahelma, 2011; Nwaru, Nygård, & Virtanen, 2016). Of mental health disorders especially depression, anxiety, heavy alcohol consumption and alcohol-related disorders have been associated with unemployment (Junna, Moustgaard, & Martikainen, 2020; Paul & Moser, 2009).

Along with high morbidity the findings of increased use of health services during unemployment is a logical outcome (Honkonen et al., 2007; Jin, Shab, & Svoboda, 1995; Kraut, Mustard, Walld, & Tate, 2000). However, not all of earlier research findings are consistent. There are results which refer to decreased health care (HC) attendance among unemployed people (Kerätär, Taanila, Jokelainen, Soukainen, & Ala-Mursula, 2016; Roberts et al., 2018; Virtanen, 1993). In addition, despite increased usage, care needs go unaddressed in HC in the case of unemployed patients (Åhs, Burell, & Westerling, 2012; Kerätär et al., 2016). The identification of mental health problems among unemployed people would be a premise in their diagnostics, treatment, rehabilitative processes and improving the re-employment prospects.

Morbidity is closely connected to functional ability and ability to work. However, research of the work ability of unemployed people is still scarce. Jin et al. (1995) suggested improving HC professionals' ability to recognise the possible adverse consequences of unemployment among their patients (Jin et al., 1995). Furthermore, according to a report by the Organisation for Economic Cooperation and

Development (OECD) 'Sickness, disability and work: Breaking the barriers' one of the conclusions was to enhance the identification of health problems which compromise the threaten capacity to work (OECD, 2010).

Based on the knowledge of impaired health and increased morbidity among unemployed people and on the hypothesis that among long-term unemployed there are a substantial number of people who are unable to work and eligible for a disability pension (DP) the Eligibility for Disability Pension project (EDIPE) (in Finnish Eläkemahdollisuuksien arvio -projekti, ELMA) was initiated by the Ministry of the Labour in Finland. The EDIPE project was a screening project targeted for long-term unemployed people. The criteria for participating in the project were long-term unemployment of at least one year, as long-term unemployment is defined by the International Labour Organisation (ILO), and work disabilities detected in earlier medical examination (International Labour Organisation, 2016). The goal of the project was to screen out from the long-term unemployed population those people who were unable to work and assist them in the DP application process. The project ran from 2004 to 2009 nationwide and the working practices continue in some municipalities (Työministeriö [Ministry of Labour], 2004). In the city of Tampere the EDIPE project started earlier and the material for this study was collected from the medical register of the EDIPE project from 2001 to 2007 in Tampere, Finland.

Involved in the clinical work of EDIPE project in Tampere there were several professionals who were interested in learning more about the health and work ability of long-term unemployed people in terms of scientific research. When the organiser responsible, Tampere Adult Education Centre (in Finnish Tampereen aikuiskoulutuskeskus, TAKK), also encouraged scientific research, the study group was composed. The leader of the study was Dr. Pekka Virtanen PhD, docent, a health sociologist (University of Tampere) with a long research career in the field of health of unemployed people. Another senior researcher who innovated the study was Dr. Aarne Ylinen, PhD, neurologist and docent, and at that time chief of the medical rehabilitation unit in Tampere University Hospital. The authorities at Tampere Adult Education Centre and the Tampere Employment Services also participated in initiating the study. Likewise, Professor Emeritus Matti Joukamaa (social psychiatry) and Professor Emeritus Jukka Uitti (occupational medicine) of the University of Tampere. Junior researchers, physiatrist Virpi Heikkinen and I, the present author, were interested in the topic since we consulted as clinicians in the EDIPE project. In addition, psychologist Risto Hokkanen participated actively in the work of the research group.

I was initially asked as a clinical psychiatrist to join the EDIPE project in 2002. Since then, I have examined long-term unemployed people with mental health problems and assessed their ability to work, first as an independent practitioner and from 2015 as a part of my clinical work in the Mental Health and Substance Abuse Services of the City of Tampere.

Looking from the grassroots level at the health problems and work disabilities of probably at least one thousand long-term unemployed individuals I have observed that attention to mental health problems and interventions focused on the ability to work has been seriously delayed, for years, even for decades in many cases. Also, some of my patients noted that treatment and rehabilitation should have been initiated years ago. However, the situations of those people have mostly been very complicated. With the wisdom of hindsight, it is easy to judge the earlier decisions and solutions.

Those clinical problems arose my interest to investigate more specifically the identification of mental health problems among long-term unemployed people and to find out why the regular HC services failed to recognise the need to assess their work ability.

The fact that I have worked as a clinician among long-term unemployed patients has been at the same time a blessing and a curse for my scientific work: The blessing means a more profound and manifold understanding of the problems of focusing on challenges with mental health disorders and work ability among long-term unemployed people. By curse I refer to the difficulties in coercing such abundant material full of individual details and speculations to the concise form of scientific research. Finding an inner balance between those aspects took time and was one of the reasons for the prolonged process of this dissertation. Finally, the work is completed.

In my dissertation I endeavour to shed light on the various elements underlying the problems in identifying depression and alcohol-related disorders and their connections to work ability and DPs granted among long-term unemployed people. Even if this research process has taken its time, unemployment seems to remain topical. When writing this, the recent news announces that the unemployment rate in OECD countries in September 2020 was 7.3%, accounting for about 48 million people unemployed in OECD countries (OECD, 2020). In October 2020 the unemployment rate in Finland was 7.4% meaning 203,000 unemployed individuals. Of these, 82,000 were long-term unemployed and 34,300 had been unemployed for over two years. These numbers continue to be a very valid reason to further examine the consequences of unemployment (Statistics Finland, 2020a).

This dissertation investigates the identification of alcohol-related and depressive disorders encountered in health and employment services as well as the association between the alcohol-related and depressive disorders identified and DPs granted. Moreover, HC attendance styles are explored. The findings of the study are compared to the literature on the mental health and work ability of unemployed people and proposals for the future are given enhance more sensitive identification of mental health disorders and work disabilities among unemployed people.

2 REVIEW OF THE LITERATURE

With the motto of this dissertation thesis: ”Work is a person's strongest tie to reality” I want to underline the multidimensional importance of work for people’s well-being and thereby underline the lack of various supportive and gratifying elements on which unemployed people miss out.

In her classic studies Marie Jahoda, professor of social psychology at the University of Sussex sheds light on the multifarious functions of the work for people (Jahoda, 1981, 1982). She outlined the latent objective consequences of employment as follows. “Employment:

1. Imposes the time structure of a day
2. Offers regularly shared contacts and experiences with people outside the nuclear family
3. Links people to goals and purposes that transcend their own
4. Defines aspects of personal status and identity
5. Enforces activity”

Those consequences are not purposefully planned but are like positive by-products and closely related to the motivation to work. Moreover, these latent functions explain partly why unemployment is psychologically harmful for people (Jahoda, 1981).

Peter Warr, a professor of work psychology in Sheffield University Management school, introduced in 1980s the multi-perspective vitamin model to categorise the factors which play a role in mental health and environment, especially in working life. The model became more complete in subsequent decades and, instead of the original nine, is based on the twelve principal environmental characteristics to which mental health is responsive.

1. Opportunity for control
2. Opportunity for skill use
3. Externally generated goals
4. Variety
5. Environmental clarity
6. Availability of money
7. Physical security

8. Opportunity for interpersonal contacts
9. Valued social position
10. Supervision
11. Career
12. Fairness

The lack of these environmental factors can be connected to the negative impact of unemployment. (Warr, 1987, 2007)

In a more recent systematic meta-review Modini et al. (2016) concluded that being employed has been associated with greater sense of autonomy and coping with demands, opportunities for personal development, maintaining social status, improved personal wellbeing, reduced anxious and depressive symptoms, and facilitating recovery from mental health disorders (Modini et al., 2016).

This review of the literature will introduce the existing knowledge of the connections between unemployment and health focusing on mental health, especially on depressive and alcohol-related disorders, which are the predominating mental health disorders among unemployed people (Henkel, 2011; Murphy & Athanasou, 1999). Also, studies concerning the identification of mental health disorders, use of HC services, assessment of ability to work among unemployed people and DP will be reviewed.

Compiling this review was quite a challenging operation. To build up a systematic review turned out to be a mission impossible since there are no established keywords in the field of the mental health of unemployed people. E.g. one can find valid references with quite opposite keywords like 'unemploy*' as well as 'employ*'. In the beginning I mainly used a medical reference database Medline or PubMed and ProQuest, the database of social sciences. Also, I found some adequate references from the Science Direct database and from Google Scholar. Latterly a multidisciplinary reference database Scopus turned out to be the most meticulous source for this study. Finding some relevant studies, reviews and meta-analyses and with the assistance of the databases and modern search engines opened increasingly relevant literature. Reference lists of the scientific articles and the functions like "related documents" and "cited by" in the databases opened more and more relevant information sources. In addition, applications of search engines automatically yielded new publications related to the themes I was searching for and sent notifications to my e-mail.

2.1 Unemployment – a risk for poor health

There is ample literature on the relationship between unemployment and ill-health. Below I briefly present some aspects of that relationship.

2.1.1 Unemployment, quality of life, well-being, life satisfaction and financial strain

Decreased well-being is easy to connect to unemployment based on the experience of every-day life. The research on the theme gives us more precise information. Health-related quality of life was lower among unemployed people than among employed people measured by Quality Adjusted Life Years (QALY) in Swedish study. The negative effect was strongest among young people, men and married people (Norström et al., 2019).

Mel Bartley (1994) in a review article elucidated the relationship between unemployment and ill-health. Financial hardship emerged as one of the key mediating factors between health and unemployment. Unemployment increased the risk for other stressful life events. Stigma and social isolation were also related to unemployment (Bartley, 1994).

McKee-Ryan et al. (2005) in a meta-analysis studied the association of well-being with unemployment. According to the study unemployed individuals have poorer mental health, physical well-being and life satisfaction than do employed people. As expected, personal work-role centrality has an even more negative effect on mental health and life satisfaction during unemployment. Correspondingly, well-functioning coping skills have a positive effect on mental health, physical well-being and life satisfaction (McKee-Ryan, Song, Wanberg, & Kinicki, 2005). As Bartley (1994) stated, and also in the study by McKee-Ryan et al. (2005), perceived financial strain was negatively associated with mental health and life satisfaction and the long-term unemployed had poorer well-being than short-term unemployed people (McKee-Ryan et al., 2005).

2.1.2 Unemployment and unhealthy behaviour

Health-related behaviour among unemployed individuals is often unfavourable. Smoking, risky alcohol consumption, unhealthy nutrition and diminished physical activity are prevalent (Bartley, 1994).

In Norway Claussen (1993, 1999) reported harmful health behaviour among unemployed people. Smoking and heavy alcohol consumption were more common than among employed people. Cholesterol levels were increased among unemployed women (Claussen, 1993, 1999b).

In a German Health Update Study, unemployed people smoked more frequently and exercised less frequently than those included in the labour force (Kroll, Müters, & Lampert, 2016).

Higher prevalence of health indicators referring to poor health among long-term unemployed people compared to employed people, with the exception of hypercholesterolemia, has been reported from Spain. The indicators were smoking, alcohol consumption, physical exercise, hypertension, diabetes mellitus (DM) and obesity (Acevedo, Mora-Urda, & Montero, 2020). Long-term unemployment at the age of 30 years was connected to suboptimal self-rated health among women and to heavy alcohol consumption among men in a cohort from Northern Sweden (Reine, Novo, & Hammarström, 2012).

Unemployment has also been connected to positive changes in health behaviour: The number of regular smokers decreased and leisure time physical activity increased among long-term unemployed construction and forest workers in a Finnish follow-up study (Liira & Leino-Arjas, 1999).

2.1.3 Unemployment and health

The connection between unemployment and impaired health has been demonstrated in numerous studies. Involuntary job loss decreased both physical functioning and mental health among older workers in the USA (Gallo, Bradley, Siegel, & Kasl, 2000), while in the German Microcensus study, unemployed people had greater morbidity and more disabilities (Hollederer, 2011). In the German Health Update Study, unemployed individuals reported poorer subjective health than did employed people (Kroll et al., 2016). Claussen (1993,1999) found more self-reported diseases among unemployed than employed people in Norway. The most prevalent were musculoskeletal and mental health disorders (Claussen, 1993, 1999b).

The threat of unemployment did not decrease self-assessed health in a Finnish study but those who ended up being unemployed assessed their health lower than did those who remained employed (Böckerman & Ilmakunnas, 2009).

Kaspersen et al. (2016) concluded in a 14-year follow-up study in Norway that poor health increases the risk for unemployment and suggested focusing on the

health of unemployed people to enhance their chances of re-employment (Kaspersen et al., 2016). Poor perceived health was a stronger risk factor than decreased functional capacity in predicting exit from employment according to a multinational study in several European countries (Van Den Berg, Schuring, Avendano, Mackenbach, & Burdorf, 2010).

In a recent Hungarian follow-up study after mass lay-offs, health expenditure increased among people who remained unemployed (Bíró & Elek, 2020).

Older unemployed people had worse perceived health and more long-term illnesses compared to employed people in another international study in European countries (Alavinia & Burdorf, 2008). Suboptimal self-rated health was associated with unemployment and with prolonged unemployment in a follow-up study in Sweden (Virtanen, Janlert, & Hammarström, 2013).

In a mental health study in Sweden the odds ratio (OR) for poor self-rated psychological health was almost four-fold among unemployed men and over three-fold among unemployed women compared to white-collar employees (Lindström, Ali, & Rosvall, 2012). In the European Health Survey in Spain self-perceived health deteriorated among long-term unemployed people and depression and anxiety increased the risk for poor self-perception of health (Acevedo et al., 2020).

In a systematic review of unemployment and self-rated health, the effects seemed to depend on the study context. A constantly negative association was found between low socio-economic status (SES), being a manual worker and unemployment accompanied by impaired health. Strong social network was positively associated with good self-rated health among unemployed people. (Norström, Virtanen, Hammarström, Gustafsson, & Janlert, 2014).

Concerning perceived health, variation between genders has been reported. In several studies men have been more affected than women (Artazcoz, Benach, Borrell, & Cortès, 2004; Buffel, Van de Velde, & Bracke, 2015; Economou, Angelopoulos, Peppou, Souliotis, & Stefanis, 2016; Norström et al., 2019; Paul & Moser, 2009). However, this inequality between genders seems to even out and women suffer from the health consequences of unemployment as do men (Hammarström, Gustafsson, Janlert, Strandh, & Virtanen, 2011). More studies on the theme will be referred to 2.3.5.2 below.

2.1.4 Mechanisms behind ill-health among unemployed people

In their comprehensive review Jin et al. (1995) reported more health-related symptoms among unemployed than among employed people. They concluded that the plausible mechanisms behind the detrimental effects of unemployment on health were: 1) disrupted social relationships, which lead to greater risk behaviour (alcohol consumption and poor diet) 2) stress and 3) precipitated bereavement reaction, like those caused by other losses. These mechanisms would support the hypothesis that unemployment causes mental and physical health problems, which, in turn, are related to the observed association with increased mortality rates (Jin et al., 1995).

2.1.4.1 Biological mechanisms associated with poor health and unemployment

The mechanisms behind the connection between unemployment and poor health could be explained by the stress-vulnerability model (Harris, 2010). The health consequences seem to be mediated through neuro-biological stress reactions. Psychological distress has its physiological responses which can also expose to metabolic or immunological disorders (Bartley, 1994). Stress due to unemployment may be connected to physical disorders through several mechanisms, including inflammation. Inflammation could, therefore, be implicated in processes associated with excess morbidity during unemployment. The findings by Hintikka et al. (2009) support low-grade tissue inflammation induced by psychosocial stress. This may be the biological link between outside stressor, e.g. unemployment, and ill-health since increased levels of interleukin-6, as an indicator of low inflammation, were revealed to be higher among unemployed people than among the employed (Hintikka et al., 2009).

Hughes et al. (2017) studied in their meta-analysis the levels of fibrinogen and C-reactive protein (CRP) as indicators of systemic inflammation. The levels of both indicators were significantly higher among unemployed compared to employed participants. The levels of CRP among unemployed people corresponded to the increased cardiovascular risk (Hughes, Kumari, McMunn, & Bartley, 2017). The finding corroborates the results by Herbig et al. (2013) who reported increased morbidity due to cardiovascular diseases measured by hospital admissions due to heart attack among unemployed people in Germany and the USA. Nevertheless, in Sweden no such association could be demonstrated (Herbig et al., 2013). Sumner et al. (2020) found an association between elevated fibrinogen levels and

unemployment but the association between CRP and unemployment was nullified in adjusted models (Sumner, Bennett, Creaven, & Gallagher, 2020).

Serum cortisol levels increased in the first six months of follow-up among unemployed people and decreased among unemployed women from six to twelve months of follow-up but did not revert to the level at the starting point (Maier et al., 2006). Compared to those with a spell of unemployment ≤1 month, long-term unemployed people had poorer physical work capacity, higher serum cortisol levels and increased psycho-social distress with statistical significance. However, among long-term unemployed women some degree of adaptation to unemployment was found since serum cortisol levels decreased remarkably from 13 to 20 months of unemployment and stayed lower after that (Maier et al., 2006). Grossi et al. (1998) reported interesting correlations between salivatory cortisol secretion and certain personality traits among long-term unemployed people (Grossi, Åhs, & Lundberg, 1998).

Ala-Mursula et al. (2013) studied the association of leucocyte telomere length (LTL) with unemployment in early adulthood. LTL is known to be associated with biological ageing through oxidative stress and inflammation processes and is connected to distress at an early age and to care-giving stress. There was an association between long unemployment spell and shorter LTL among 31-year-old men but not among women of the same age. The adjustments did not alter the result (Ala-Mursula et al., 2013).

Glucose metabolism in relation to employment status was investigated in a Finnish cohort at age 46. The risk for both pre-diabetes and type 2 diabetes (T2D) was statistically significantly elevated among those men who were unemployed for over one year compared to men constantly employed (Rautio et al., 2017). In another Finnish study the risk for prediabetes, T2D or previous diabetes was increased in both genders among unemployed individuals, whereas the risks were decreased among employed people and among women with disability status (Varanka-Ruuska et al., 2020). A systematic review and a meta-analysis demonstrated an association between unemployment and elevated risk for T2D in both genders. The researchers proposed the unhealthy lifestyle of unemployed people as the reason for the findings. The study results consolidated earlier findings (Varanka-Ruuska et al., 2018).

2.1.5 Unemployment and risk of somatic disorders

Increased stress and its physical manifestations may also be an underlying factor in those somatic diseases of unemployed people described in earlier studies. Probably the health selection process introduced in 2.2.1 below is closely connected to the increased prevalence of somatic disorders among unemployed people.

Herbig et al. (2013) reported in their review that hazard ratio (HR) increased over two-fold for heart attack and strokes among unemployed people after controlling for background factors. Cancer was more prevalent among unemployed people since re-employment after remission of cancer was difficult (Herbig et al., 2013).

In a Canadian study, comorbidities increased the risk for nonemployment in long-term follow-up among older workers. The greatest risk, 57%, was for comorbidity with musculoskeletal and mental health disorders (Chen, 2019). Also, in Finland the rate of re-employment was lower among those suffering from severe lower-back pain. The results were independent of potential confounding variables (Nwaru et al., 2016).

During the follow-up, musculoskeletal symptoms decreased among the long-term unemployed people whose work involved physical strain compared to the beginning of the study (Liira & Leino-Arjas, 1999).

The European Health Survey of Spain (EHSS) is a representative population survey in Spain. According to the EHSS in 2014 the OR for DM was over 1.5 among unemployed men and women after adjusting for background factors and DM risk factors compared to their employed counterparts. Furthermore, long-term unemployed women had a greater and statistically significant risk for obesity compared to employed women (Acevedo et al., 2020).

2.2 Health selection, social causation and composition effect

Studies on the relationship between unemployment and impaired health are largely centred around health selection versus social causation theses. Both health selection and social causation hypotheses have been supported when studying the explanation for poor health among unemployed people compared to employed people (Dooley, Catalano, & Hough, 1992; Dooley, Catalano, & Wilson, 1994; Jin et al., 1995; Kaspersen et al., 2016; Murphy & Athanasou, 1999; Stauder, 2019).

In addition to the selection-causation thesis, a composition effect has been demonstrated to explain an association between unemployment and poor health.

Composition effect means that unemployment is unequally distributed throughout society and more frequently affects certain occupational groups, mostly blue-collar workers (Kroll et al., 2016). Neither is health equally distributed between occupational classes.

2.2.1 Health selection

When the unemployment rate in society is low, mortality among unemployed people seems to be higher than among employed people, whereas during mass unemployment mortality among unemployed and employed people is more equal, referring to the smaller social disparity between employed and unemployed people during economic downturns and high unemployment rates (Jin et al., 1995; Martikainen & Valkonen, 1996). The finding has been interpreted such that during high unemployment in society, people are primarily out of work for reasons that have more to do with the labour surplus than with their personal features. But when the unemployment rate is low, job loss may be associated more strongly with individual characteristics, such as state of health (Martikainen & Valkonen, 1996).

Health selection refers to a greater risk for unemployment among those workers with impaired health especially during the downsizing and job cuts. Furthermore, employers favour healthy employees and those jobseekers who have medical problems will be less likely to be employed. Thus, their risk for prolonged unemployment increases. Symptoms of mental health disorders like social anxiety and low self-esteem may also exacerbate the search for work and make the threshold to contact employers too high.

Nwaru et al. (2014, 2016) studied the association between musculoskeletal system and re-employment. Muscular fitness was positively associated with prospect of re-employment (Nwaru, Nygård, & Virtanen, 2014). They found also severe lower back pain to be associated with a decreased re-employment among unemployed people (Nwaru et al., 2016).

Decreased life satisfaction was found even three years prior to becoming unemployed in the study by von Scheve et al. (2017) (von Scheve, Esche, & Schupp, 2017). The finding supports for health selection thesis.

According to their long, 14-year follow-up study, Kaspersen et al. (2016) stated that poor physical and mental health and heavy alcohol consumption predispose to unemployment. The study also confirmed health selection into unemployment (Kaspersen et al., 2016).

Johannes Stauder (2019) demonstrated an increased risk for health selection to unemployment in older workers with poor physical health (Stauder, 2019). The findings by Helgesson et al. (2018) were similar among young Swedish people. Nearly a third of young adults with diagnosed common mental disorders (CMD) were included in the trajectories of "increasing" and "constant high" unemployment. Whereas only around one fifth of the multi-factor matched comparison group followed those trajectories (Helgesson et al., 2018).

Unhealthy lifestyle or risky behaviour in youth seem to increase risk ratio for unemployment in young adulthood. A follow-up study from the Northern Finland Birth Cohort 1986 indicated that externalizing behaviour like aggression or rule-breaking in adolescence (between ages 15 and 16) increased the risk ratio for unemployment to 1.6-fold at age 25 to 29 years among males. Furthermore, sedentary habits in youth among males increased the risk ratio for long-term and short-term unemployment in young adulthood 1.4- and 1.3-fold, respectively. Among men, obesity in youth increased the risk ratio for long-term unemployment 1.5-fold between ages 25 and 29. Among young women, in those with multiple risky behaviours the risk ratio for long-term unemployment was increased 1.8-fold. Of all participants 41% had been unemployed at least one year (Heikkala et al., 2020).

Those with medical disorders were unlikely to be re-employed in the two-year follow-up. There was even evidence according to which concealing mental health problems enhances the chances of re-employment (Rüsch et al., 2018; Staiger, Waldmann, Rüsch, & Krumm, 2017).

2.2.2 Social causation and composition effect

Social causation is defined as the various types of distress caused by unemployment. It includes the concepts of psychological, social and financial distress. High stress levels may also increase the risk for morbidity and mortality through biological mechanisms as presented above.

Jin et al. (1995) concluded in their review that the direction of causality from unemployment to illness seemed to be more pronounced than the converse. However, they emphasised that the relationship is complex (Jin et al., 1995).

In their meta-analysis of 16 longitudinal studies Murphy and Athanasou (1999) researched how change in employment status affected to mental health of participants. They focused especially on the question of causality. They demonstrated that moving from unemployment to employment improved mental

health more than losing the job impaired it. They concluded that the findings support the causality theory to explain the association with unemployment and mental health problems. (Murphy & Athanasou, 1999).

Deterioration of mental health seemed to be related to unemployment as a causation effect. The causation was obvious among the younger age groups. Among older unemployed people mental health even improved during unemployment (Stauder, 2019).

When studying health-related selection and the causal hypotheses regarding unemployment, the results supported both theories: Those with diagnosed psychiatric syndromes were unlikely to be re-employed and had an increased risk for deteriorating health during their unemployment. The finding supported health selection theory. On the other hand, re-employment seemed to reduce the prevalence of mental health problems to the same level as among those with stable employment. Thus, the findings also support the social causation theory (Claussen, 1999b).

Paul and Moser (2009) criticised the conclusions of earlier meta-analyses concerning the causality between unemployment and mental health, i.a. they found support for both health selection and social causation theses in their meta-analysis (Paul & Moser, 2009).

Above all, there is also evidence supporting both selection and causation hypotheses and it would be very important to be aware of both risky pathways towards prolonged unemployment, impaired health and work disabilities.

In addition to the selection-causation thesis, a composite effect has been demonstrated as an explanatory factor between unemployment and poor health (Kroll et al., 2016). This unequal distribution of both unemployment and health throughout society should be born in mind when considering preventive measures to enhance the health of unemployed people.

2.3 Mental health of unemployed people

Stable employment is generally connected to financial security. Apart from financial security, paid work includes many other positive consequences as Jahoda (1981, 1982) and Warr (1987, 2007) have described in their pioneering work introduced at the beginning of the section two (Jahoda, 1981, 1982; Warr, 1987, 2007).

According to the meta-analysis of the benefits of employment by Modini et al. (2016) paid work often confers greater subjective autonomy, acceptance and status

within society, subjective well-being and chance for personal development. Furthermore, employment is associated with reduced psychological distress, particularly among women. An occupational role provides the resources including affirmative social support, which may help to cope with several demands in life. Supportive supervision, especially task assistance, social and emotional support and supervisory interpersonal interaction enable an important feeling of psycho-social safety. The meta-analysis concluded briefly that work seems to be beneficial for an employee's mental health (Modini et al., 2016).

Conversely, unemployment seems to decrease mental well-being and increase the risk for psychological distress, depressive and anxious symptoms and alcohol abuse (Henkel, 2011; Modini et al., 2016). Unemployment is associated with persistent hopelessness, especially among men, regardless of having an existing mental health disorder or not (Haatainen, Tanskanen, Kylmä, Antikainen, et al., 2003a; Haatainen, Tanskanen, Kylmä, Honkalampi, et al., 2003b). Next, earlier research on the mental health of unemployed people focusing especially on depressive and alcohol-related disorders will be introduced in more detail.

2.3.1 Burden of mental health disorders

Over one third of people in the European Union (EU), altogether nearly 165 million people, are affected by mental health disorders. Measured by DALYs (Disability Adjusted Life Years) mental health disorders contribute over a quarter of all-cause burden of diseases in the EU and hence result in considerable human misery and loss of resources (Wittchen et al., 2011). Mental health disorders are also closely linked to the risk for diverse marginalisation in society. The process of social exclusion occurs gradually in most cases. Therefore, the warning signs of threatening marginalization can be found in several walks of life. When considering unemployment, the history of work career is frequently contaminated.

Major depressive disorder (MDD) is the third leading cause of years lived with disabilities (YLD) globally (James et al., 2018). Over 320 million people in the world suffer from depression (WHO Team, 2017). Depression is more common among women than men. The 12-month prevalence of MDD is 6.9% in the EU (Wittchen et al., 2011). The prevalence of MDD in Finland is 5.4% (Markkula et al., 2015).

Unipolar depression is also a leading contributor to burden of disease measured by DALYs: The number of lost years of healthy life has been calculated as 4,320,400 in Europe (Gustavsson et al., 2011; Vos et al., 2015; WHO, 2016). According to

earlier studies around 10% of primary HC patients and 50% of specialised mental HC patients suffer from clinical depression (Ansseau et al., 2008; Salokangas, Poutanen, Stengård, Jähi, & Palo-Oja, 1996).

The total costs of MDD are vast, e.g. in USA the costs have been estimated at over $210.5 billion in 2010 (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015).

In terms of YLDs alcohol abuse disorders have been included in the group of twenty most virulent diseases among males at least since the 1990s (James et al., 2018). In Finland the prevalence of alcohol use disorders was 4.5%. They have been found to be about five-fold in men compared to women with prevalences of 7.3% and 1.4%, respectively (Pirkola et al., 2005).

2.3.2 Mental health disorders among unemployed people

Much research has been presented on the connection between unemployment and mental health disorders (Butterworth, Leach, Pirkis, & Kelaher, 2012; Comino et al., 2003; Fryers, Melzer, Jenkins, & Brugha, 2005; Hakulinen et al., 2019; Heponiemi et al., 2007; Jin et al., 1995; Paul & Moser, 2009; Pinto-Meza et al., 2013; Reissner et al., 2014; Viinamäki, Koskela, & Niskanen, 1996; Zuelke et al., 2018).

Paul & Moser (2009) reported poorer mental health among unemployed people than among employed people in their frequently cited meta-analysis. They measured impaired mental health with effect size (d=0.51). In other words, the study demonstrated that the level of mental health among unemployed people was a half standard deviation below the mental health level of employed people. The indicators of mental health included various symptoms of distress, depression, anxiety, lowered subjective well-being and self-esteem (Paul & Moser, 2009).

In the second Netherlands Mental Health Survey and Incidence Study (NEMESIS-2), a population based and longitudinal study, job loss doubled the risk for mental health disorders in three-year follow-up (Barbaglia, Ten Have, Dorsselaer, Alonso, & de Graaf, 2015). Furthermore in NEMESIS-2, unemployed/disabled people had OR 4.59 for mood disorders and OR 2.75 for substance abuse disorders compared to employed people (De Graaf, Ten Have, Van Gool, & Van Dorsselaer, 2012).

According to a survey of the prevalence of mental health disorders OR for affective, anxious, substance-related or somatoform disorders varied from 1.6 to 3.5 among unemployed people in relation to employed people (Baumeister & Härter, 2007).

Plant closure studies in the middle of the economic recession in Finland at the beginning of the 1990s revealed interesting findings. A sample of workers from a closing wood industry enterprise was recruited as a study group and the control group was from another wood processing factory from the same area. Mental well-being was impaired and prevalence of a depression was higher among unemployed people compared to those in the control group. Also, the need for mental health services increased. Somatoform symptoms were frequent in both the study and the control group. (Viinamäki, Koskela, & Niskanen, 1993).

Impaired well-being among men was associated with poor subjective health, lack of social support, low income and future insecurity. Depression was more prevalent among unemployed than employed men (Viinamäki, Koskela, Niskanen, Arnkill, & Tikkanen, 1993a). Moreover, poor financial situation seemed to have the strong impact on mental well-being. This was particularly obvious among married men (Viinamäki, Koskela, Niskanen, & Arnkill, 1993b).

Those unemployed people who perceived minor social support were more depressed, more in need of psychological help and had more psychosomatic symptoms than those unemployed people with adequate social support. Sparse social support was also associated with financial hardship, poor subjective health, uncertainty about the future and smoking. Regular use of alcohol was associated with depression and psychosomatic symptoms (Viinamäki, Koskela, Niskanen, & Arnkill, 1993a).

According to a population-based register study during the economic recession in the 1990s by Viinamäki and al. (2000), mental health disorders were more common among unemployed people than among general population (Viinamäki, Hintikka, Kontula, Niskanen, & Koskela, 2000).

Risk for mental health disorders was also higher among unemployed than employed people in another Finnish population-based study. For mood disorders the OR was nearly two-fold and for alcohol-related disorders over 2.5-fold (Honkonen et al., 2007).

The deleterious effect of youth unemployment on mental health was shown in a 27-year follow-up study in Sweden. Unemployment in youth was connected to higher psychological problem index at the age of 42. Also, the accumulation of unemployment periods seemed to be linked to increased psychological problems. The results were also associated with health selection to unemployment according to the psychological problems index. The researchers concluded that youth unemployment increases the risk for disadvantaged positions throughout the life course and that recurring unemployment periods may predispose to a less favourable

socioeconomic position meaning that the mental health costs caused by unemployment may be severely underestimated (Strandh, Winefield, Nilsson, & Hammarström, 2014).

Among those who suffered from somatoform dissociation unemployment was fairly prevalent (Maaranen et al., 2004). Also, cognitive impairment and especially lower general intelligence have found to be associated with impaired employability (Gorske, Daley, Yenerall, & Morrow, 2006).

2.3.3 Unemployment and depression

An association between unemployment and depression relies on an abundance of earlier research (Acevedo et al., 2020; Alavinia & Burdorf, 2008; Catalano et al., 2011; Comino et al., 2003; Comino, Harris, Silove, Manicavasagar, & Harris, 2000; Dooley et al., 1994; Gallo et al., 2006; Herbig et al., 2013; McKee-Ryan et al., 2005; Paul & Moser, 2009; Pfeil, Holtz, Kopf, Hegerl, & Rummel-Kluge, 2017; Picakciefe, Mutlu, & Kocaturk, 2016). The evidence of depression both as the cause and the consequence of unemployment is convincing. Furthermore, depression reduces the capacity for work, decreases the chances of re-employment and hence increases the risk of prolonged unemployment.

In a review article by Herbig et al. (2013) HR for mortality was 1.63 among unemployed compared to employed people. Prevalence of clinically significant symptoms of mental health disorders was twice as high among unemployed people as among employed people (Herbig et al., 2013). Risk of CMD (including anxious and depressive disorders) was significantly increased among individuals who had multiple difficulties in addition to unemployment, like impaired physical health or social problems (Ford et al., 2010).

A multi-centre study in several European countries revealed that unemployed people had OR 3.03 for severe depression compared to employed people (Alavinia & Burdorf, 2008). Among unemployed or disabled participants the adjusted OR for mood disorders was 2.4 compared to employed in the European contribution to the World Mental Health Surveys Initiative which covered general population in ten European countries(Pinto-Meza et al., 2013).

In particular, prolonged unemployment entails a risk for depression and vice versa: poor mental health may negatively affect re-employment (Acevedo et al., 2020; Butterworth et al., 2012; Stankunas, Kalediene, Starkuviene, & Kapustinskiene, 2006). In Turkey, Picakciefe et al. (2016) demonstrated that greater risk for

depression was associated with long-term unemployment (Picakciefe et al., 2016). Prevalence of depression was highest with statistical significance among long-term unemployed people compared to those employed or short-time unemployed in a Finnish study among construction and forestry workers (Liira & Leino-Arjas, 1999). Conversely, unemployment was found to be one of the risk factors for persistence of depression in a systematic review among primary HC patients (Gilchrist & Gunn, 2007).

About a half of recently unemployed people were diagnosed with mental health disorders in clinical examination by psychiatrists with psychodynamic orientation. The mental health disorders were mostly mild. Most prevalent was adjustment disorder (Viinamäki, Koskela, Niskanen, & Tähkä, 1994). There was no statistically significant difference in the prevalence of moderate to severe depression measured by the Beck Depression Inventory (BDI) between the study and control groups at baseline. At one-year follow-up depression was about twice as frequent in the study group as in the control group (Viinamäki et al., 1996).

In a Canadian study comparing depressed patients in primary and tertiary care settings according to employment status, depressed unemployed patients in primary care were significantly older and had a greater somatic comorbidity compared to employed patients. In the tertiary care setting there were no differences in demographics between employed and unemployed patients, but unemployed patients were younger at first visit to mental HC, had more suicide attempts and hospitalizations, more anxiety symptoms, lower quality of life, more self-rated disability, lower work productivity and higher rate of benzodiazepine use (Rizvi et al., 2015).

Depressive symptoms increased the risk for unemployment, sick leave and work disability in a Danish study after adjusting for confounding factors. Physical demands of job and depression increased the risk for unemployment (Thielen, Nygaard, Andersen, & Diderichsen, 2013).

OR for major depression was 1.72 among long-term unemployed people without frequent alcohol intoxication but frequent alcohol intoxications (at least once a week) increased the OR to 11.27 compared to employed people without frequent alcohol intoxications (Hämäläinen et al., 2005).

2.3.4 Unemployment and alcohol-related disorders

Most of the research supports the assumption that unemployment increases alcohol consumption. However, the connection seems to be complex and there are also reverse findings.

The connection between unemployment and harmful use of alcohol has been explored for over one hundred years. In their review article, Dooley et al. (1992) represented findings supporting this conclusion from as early as the 1910s. In the 1930s during the great recession, alcohol consumption seemed to decrease along with the ultimate poverty (Dooley et al., 1992).

Several circumstances are suggested as possible reasons for increased alcohol consumption among unemployed people. Increased leisure time offers more occasions for alcohol consumption, decreases social control of drinking and increases occasions of living without a certain diurnal rhythm. Boredom or lacking meaningful activities predisposes to seeking easily available activities. Stress experienced due to lacking a job and economic distress increases the need for relaxation. Drinking may offer a new social network to replace the loss of social network along with losing a job. On the other hand, financial strain may restrict alcohol consumption among unemployed people (Lahelma, Kangas, & Manderbacka, 1995). Correspondingly, according to the review article by Jin et al. (1995), unemployment may be associated with both decreased alcohol consumption due to lack of money and with increased intake because of more leisure time or poor coping response (Jin et al., 1995).

A comprehensive review refers to unemployment as being related to risky alcohol consumption and alcohol-related disorders. A review article comprehending over 130 studies from 1990 to 2010 focused on the prevalence of substance-related disorders and their impact among unemployed people. The review summarises the main findings as follows: Risky alcohol consumption is more prevalent among unemployed people than among the employed. Substance misuse increases the risk for unemployment and decreases the chance for re-employment. Unemployment appears to be a significant risk factor for substance abuse disorders even if unemployed people cannot be defined as a special risk group based on present knowledge. The risk of relapse is increased among unemployed people after successful addiction treatment. The drinking patterns seem to be procyclical (Henkel, 2011).

According to a review by Henkel (2011) alcohol consumption appears to decrease during economic downturns when the unemployment rate increases (Henkel, 2011).

The findings by Leino-Arjas et al. (1999) are in line with this result as they reported decreased alcohol consumption among workers who ended up in long-term unemployment compared to those who continued to be employed or short-time unemployed (Leino-Arjas, Liira, Mutanen, Malmivaara, & Matikainen, 1999). Instead, Compton et al. (2014) reported heavy alcohol consumption, alcohol abuse or dependence among unemployed people also during a period of high unemployment in the USA in 2009-10, excluding young unemployed adults aged 18-25 year old (Compton, Gfroerer, Conway, & Finger, 2014). In addition to selection and social causation mechanisms as an explanation for the association between alcohol-related disorders and unemployment, they raised a third possible explanation. A third factor, like and underlying trait, e.g. stress-reactivity, may underlie both unemployment and substance-use problems (Compton et al., 2014). In a review by Catalano et al. (2011) alcohol problems were associated with unemployment, but there was also some evidence of decreased alcohol consumption and short-term unemployment (Catalano et al., 2011).

The findings of the meta-analysis by Henkel (2011) and the studies by Dooley et al. (1992) support reciprocal causation theory between alcohol-related disorders and unemployment (Dooley et al., 1992; Henkel, 2011). However, Claussen (1993,1999) judged that harmful drinking among unemployed men in Norway is prevalent and is explained by the unemployment per se, rather than that men with harmful drinking are selected into unemployment (Claussen, 1993, 1999a).

The European contribution to the World Mental Health Surveys Initiative included general population in ten European countries. According to the study unemployed people had OR 1.5 for alcohol-related disorders compared to employed people (Pinto-Meza et al., 2013). Involuntary unemployment and duration of poverty increased the risk for heavy drinking across a 13-year span independently of each other, background variables and actual socioeconomic status (Mossakowski, 2008).

No association could be demonstrated between frequency of alcohol drinking and employment status in the study by Lahelma et al. (1995) in Finland. However, mental well-being was negatively associated with drinking frequency. To be intoxicated was more frequent among unemployed men and employed women than among employed men and unemployed women. Health problems due to drinking were positively associated with unemployment among Finnish men. The study population comprised manufacturing workers (Lahelma et al., 1995).

The prospective study by Janlert and Hammarström (1992) among young Swedish adults illustrates a clear correlation between alcohol consumption and unemployment in both sexes. They found a reciprocal relationship between

unemployment and increased alcohol consumption: High alcohol consumption among school leavers increased the risk for becoming unemployed as unemployment, irrespective of earlier alcohol consumption, also increased alcohol consumption (Janlert & Hammarström, 1992).

In a Danish prospective cohort study, high-level consumption of alcohol but also abstaining from alcohol increased the risk for transitioning from employment to unemployment and decreased the probability of returning to work from unemployment. In addition, the HR for moving from unemployment to sickness absence and social benefits was increased (Jørgensen et al., 2019). According to a study of self-reported drinking, unemployed people drank more alcohol than did employed people after adjusting for age and social class. Binge drinking was also more common among unemployed people. However, a larger proportion of unemployed people than employed people reported being non-drinkers (Lee, Crombie, Smith, & Tunstall-Pedoe, 1990).

Risky level alcohol consumption predicted prolonged unemployment in a Finnish study. Current unemployment increased the risk for hazardous drinking measured by various indicators and the risk for alcohol-related diagnosis in the future (Virtanen et al., 2013).

More heavy drinkers and alcohol-related health problems were found among unemployed men than among unemployed women (Claussen, 1993; Lahelma et al., 1995). Being unemployed was associated with hazardous drinking and alcohol use disorder (AUD) in a study of prevalence and associations of hazardous drinking in Finland (Halme et al., 2008). The alcohol consumption remained fairly stable among middle-aged Finns and of the employment classes heavy drinking was most prevalent among unemployed people (Vladimirov et al., 2016).

2.3.5 Background factors connected to mental health and unemployment

Several background factors have been demonstrated to have an association with unemployment. The existing state of knowledge of the association is presented below.

2.3.5.1 Age

In their meta-analysis Paul and Moser (2009) demonstrated that age had a curvilinear association with mental distress among unemployed people, meaning that the

middle-aged suffered from mental distress less than younger and old individuals (Paul & Moser, 2009). The result is quite the opposite to earlier reports in which the middle-aged have been under the greatest strain (Lahelma, 1989). According to Paul and Moser, (2009) the explanation may be that mental strain is the highest in middle age among general population but among the unemployed people the distress seems to be lowest among middle aged people, who may have several satisfying roles in addition to the professional role.

Older age was the risk factor for depression among long-term unemployed people in Lithuania (Stankunas et al., 2006). Involuntary job loss resulted in depressive symptoms among older workers and the symptoms appeared to be persistent in 3- to 4-year follow-up (Gallo et al., 2006).

Unemployment was associated with depressive symptoms among middle-aged women and men but not among older men and women in a Korean study (Jang et al., 2009).

Work ability was statistically significantly impaired among middle-aged (45-54yrs) unemployed individuals compared to employed and older or younger unemployed people (Saikku & Hannikainen, 2019).

2.3.5.2 Gender

In earlier studies the psychological distress associated with unemployment seemed to be a greater strain for men than for women. Unemployed women were thought to have an important role in taking care of domestic work, which is presumed to bring structure their everyday time management and to contribute to cushioning the psychological load of unemployment (Jahoda, 1982). There are also other studies supporting for theory. Women are still mostly responsible for organising the daily life in families. Furthermore, women often have a stronger social network and culture of sharing problems with friends and relatives thereby receiving support and understanding while men's social networks operate on a different level and men tend to keep their problems to themselves. Furthermore, men are more affected by the disadvantage of unemployment since they are supposed to be more work focused than women (Bambra & Eikemo, 2009; McKee-Ryan et al., 2005).

Paul and Moser (2009) revealed in their meta-analysis of unemployment and mental health that gender is a significant moderator for impaired mental health among unemployed people. The effect size was greater among men (Paul & Moser, 2009). In the Netherlands in NEMESIS-2, a population-based longitudinal study, job loss increased adjusted OR for 3-year total incidence of any mental disorders in

men to 3.04. Among women the reduction in the household income was connected to adjusted OR 2.41 for mental health disorders 3-year incidence. Women had significantly high risk for mood and men for substance abuse disorders (Barbaglia et al., 2015). The risk for CMD was higher among unemployed men than among unemployed women in a British study (Ford et al., 2010). In Greece during the great financial crisis and high unemployment men seemed to fall ill with major depression more often than women (Economou et al., 2016). Also, in a Korean study unemployed men had higher risk for depression than unemployed women (Jang et al., 2009).

Adherence to masculine norms predicted depressive symptoms after accounting for attributional processes and initial depressive symptoms. Negative attributional style was negatively associated with the likelihood of re-employment at the three-month follow-up. Nevertheless, adherence to masculine norms was positively associated with the likelihood of re-employment (Syzdek & Addis, 2010).

Álvaro et al. (2019) reported that unemployment affects men and women differently. Being unemployed seemed to decrease men's self-esteem more severely than women's. Furthermore, low self-esteem acted as a mediator between unemployment and depression, but this association was seen among men only. The strong traditional gendered roles may be one explanation for this phenomenon in this Spanish study (Álvaro, Garrido, Pereira, Torres, & Barros, 2019). According to Butterworth et al. (2012) CMD increased the risk for unemployment among women and the risk for longer lasting unemployment among men (Butterworth et al., 2012).

Among young men with shorter time of unemployment the findings of a qualitative study addressed of the themes of losing one's foothold and were categorised further as: 1. poor time structure, 2. feeling of shame and guilt, 3. standing on the sidelines, 4. not being anybody and feeling worried and 5. fleeing from reality, lost contact with reality and destructive behaviour (Björklund, Söderlund, Nyström, & Häggström, 2015). The findings of the study by Björklund et al. (2015) seem to concur with Jahoda's latent consequences of employment - theory and Warr's vitamin theory (Jahoda, 1981, 1982; Warr, 1987, 2007).

There are also studies in which women seem to be as susceptible as men to the negative consequences of unemployment. For example, Acevedo et al. (2020) recently found unemployment to increase the risk for poor health in both genders. Women as well as men reported poor self-perceived health in the study (Acevedo et al., 2020). Also, in the study by Zuelke et al. (2018) the risk for depression was equal between the genders, but doubled among unemployed men and women on means-tested unemployment benefit (Zuelke et al., 2018). Unemployment affected Irish

men more severely than Irish women but in Sweden, men and women were equally affected. The researchers concluded that the finding is linked to the greater equality between the genders in the Swedish labour market and society (Strandh, Hammarström, Nilsson, Nordenmark, & Russel, 2013). Another Swedish study demonstrated that men and women are equally affected by the health consequences of unemployment (Hammarström et al., 2011).

Depression seemed to be a consequence of unemployment in both sexes. According to Viinamäki et al., (2000) mental health disorders were more common among unemployed women than unemployed men in a population-based register study during the economic recession in Finland (Viinamäki et al., 2000). McKee-Ryan et al. (2005) found more severe psychological and physiological distress among unemployed women than among unemployed men in their celebrated meta-analysis which dealt with the psychological well-being of unemployed people (McKee-Ryan et al., 2005). Among women, depression increased a risk for layoff, whereas in men health selection could not be shown in a study focusing on the effects of organisational downsizing (Andreeva, Magnusson Hanson, Westerlund, Theorell, & Brenner, 2015).

The ORs for impaired work ability among unemployed men were greater than among unemployed women (Saikku & Hannikainen, 2019).

Unemployed people do not live in a vacuum. Their family members also bear concerns and the job-stressors of husbands, or primary breadwinners, have been reported to increase the stress levels of their spouses (Catalano et al., 2011; Inanc, 2018; Rook, Dooley, & Catalano, 1991). Furthermore, major depressive episode seems to be associated with spouse's elevated risk of suffering depression (Lindeman et al., 2002).

2.3.5.3 Marital status

Several health risks have been associated with being single in population studies. Being married was associated with better well-being than being single in a meta-analysis of the mental well-being of unemployed people (McKee-Ryan et al., 2005). As in general population, being married or cohabiting, especially with employed spouse, was a protective factor against poor health among unemployed men (Tattarini, Grotti, & Scherer, 2018). Living without a partner was two-fold more common among unemployed than among employed people in a study covering several European countries (Alavinia & Burdorf, 2008).

Number of job losses or unemployment spells increased the risk for very excessive drinking among those with several broken relationships and especially among those never cohabitant in a Danish study among middle-aged men. The OR for very excessive drinking was 2.55 after adjustments for education and psychiatric and alcohol-related admissions among those living alone for at least ten years compared to those living with a partner (Kriegbaum, Christensen, Osler, & Lund, 2011).

Responsibility as a primary breadwinner has been related to psychological distress among married men during times of economic hardship. Married men especially suffered from impaired mental well-being six months after plant closure compared to the factory workers of another plant (Viinamäki, Koskela, Niskanen, Arnkill, et al., 1993).

Being married appeared to be a protective factor for unemployed women in the Catalonian Health Survey, whereas among unemployed men marriage seemed to be associated with poor mental health. The authors explained the findings by the male role of primary breadwinners (Artazcoz et al., 2004). The economic situation of unemployed women is often safer compared to that of unemployed men because of the employed spouse (Syzdek & Addis, 2010).

2.3.5.4 Education and occupational status

Unemployed people have in general lower education than employed people (Alavinia & Burdorf, 2008). In several earlier studies focused on long-term unemployed people the most frequent education has been compulsory education only (Hult & Lappalainen, 2018; Kerätär & Karjalainen, 2010; Savinainen, Seitsamo, & Joensuu, 2020). However, white-collar workers with higher education have had more psychological burden than other occupational classes at population level. In their distinguished meta-analysis Paul and Moser (2009) demonstrated that occupational class was significantly associated with mental health symptoms among unemployed people. Blue-collar workers were more distressed than white-collar workers (Paul & Moser, 2009). In the study by Álvaro et al. (2019) those with higher education reported less depression than did those with shorter education among unemployed people (Álvaro et al., 2019).

Higher education significantly decreased the risk of developing depression among long-term unemployed people in Lithuania according to the study by Stankunas et al. (2006) (Stankunas et al., 2006). In the Catalonian Health Survey unemployed male

manual workers without financial compensation were at greater risk for poor mental health than unemployed men in non-manual work (Artazcoz et al., 2004).

2.3.5.5 Learning difficulties

There is evidence of a connection between cognitive impairment and unemployment. The study by Kerätär and Karjalainen (2010) focused on work ability assessment among a sample of long-term unemployed people in Northern Finland with low employability. Of the participants 17% were found to have lower intellectual capacity as the reason for poorer work ability (Kerätär & Karjalainen, 2010).

In a study in the USA the problems in cognitive functioning were shown to be barrier to transition into the workforce among Welfare to Work recipients. Neuropsychological factors were found to influence employment functioning and cognitive function was found to be an important factor in the transition from welfare dependency to gainful employment. Impairment of employability was statistically significantly correlated to general intelligence. Also, deficits in attentive functions and working memory correlated with employment difficulties, but not statistically significantly. The researchers discussed the impact of general intelligence on impaired employment. Individuals with lower general intellectual functioning have restrictions in their education opportunities. They have frequently an impaired ability to meet the demands in the workforce and people with compromised information processing abilities often experience employment difficulties. (Gorske et al., 2006)

2.3.5.6 Duration of unemployment

Long duration of unemployment has often been connected to declined mental health but in a few studies some adaptation has also been indicated towards the mental burden of unemployment in the course of time.

Duration of unemployment seems to be a significant moderator between unemployment and mental health (Paul & Moser, 2009). Duration of unemployment has shown a curvilinear shape in relation to mental distress as mental health declined during the first year of unemployment, then stabilised during the second year and became impaired again towards very long-term unemployment according an extensive meta-analysis (Paul & Moser, 2009). Longer duration of unemployment predicted depressive symptoms among young adults in the study by Mossakowski

(2009) in the USA (Mossakowski, 2009). Stankunas et al. (2006) reported that prevalence of depression was elevated among long-term unemployed people compared to short-term unemployed or employed people in Lithuania (Stankunas et al., 2006). In Finland Harkko et al. (2018) discovered CMD to be more prevalent among young adult long-term unemployed people. The background characteristics correlated with duration of unemployment. They showed a dose-response effect between the duration of unemployment and CMDs (Harkko, Virtanen, & Kouvonen, 2018).

Very excessive drinking raised the OR, adjusted for education and mental health related admissions, up to 4.16 for the duration of unemployment spell ten years or over in a Danish study (Kriegbaum et al., 2011). Risky drinking both predisposes to unemployment and decreases the prospects of re-employment, especially as regards the long-term unemployment (Claussen, 1999a; Henkel, 2011; Virtanen et al., 2013).

The cumulative length of intermittent spells of unemployment tended to be correlated with deterioration in health especially among men in a Swedish study (Janlert, Winefield, & Hammarström, 2015). In another Swedish study those on long-term (>30 days) sick leave were at higher risk of ending up in long-term unemployment particularly in the case of musculoskeletal or mental health disorders (Hultin, Lindholm, & Möller, 2012).

In a prospective study during the economic downturn, long-term unemployment was predicted by higher age, short-term employment contract, previous unemployment spells, being single, regular smoking, heavy alcohol consumption, low body mass index (BMI<23), increased distress, mental health disorders and skin diseases. Workers who ended up in long-term unemployment reported increased stress but fewer incident diseases, increased frequency of exercise and increased body mass index during the unemployment compared with those employed or short-time unemployed (Leino-Arjas et al., 1999). In another study by Liira and Leino-Arjas (1999) the predictors for long-term unemployment were age over 40 years, frequent stress symptoms, smoking, frequent heavy consumption of alcohol, poor subjective health, low job satisfaction, unemployment during the year preceding the survey and being single (Liira & Leino-Arjas, 1999).

Even though the research refers to poorer mental health among long-term unemployed people, there seems to be some adaptation in the course of time (Kortteinen & Tuomikoski, 1998; Warr, 1987). After the first year of unemployment the normalization of unemployment acted as a coping strategy to buffer against the negative effects of unemployment in a study conducted in France and Luxemburg. Negative perception of unemployment was nevertheless the most significant

predictor for the mental health of long-term unemployed people and there were none positive predictors among those with three years or longer unemployment period (Thill, Houssemand, & Pignault, 2019). In a study by von Scheve et al. (2017) anxiety and sadness soon diminished after becoming unemployed as a sign of partial adaptation (von Scheve et al., 2017).

2.3.5.7 Homelessness

Homelessness has been reported to be a major public health and social problem. The overall state of health is poor among homeless people (Martens, 2001). High unemployment rate increases the rate of homelessness (Burke, Johnson, Bourgault, Borgia, & O'Toole, 2013) and homelessness is connected to increased needs for health and social services (Burke et al., 2013).

Depressive and substance-related disorders are over-represented among homeless people (Shaw, 2004). In some western countries as many as over 90% of homeless people suffer from severe mental health disorders (Martens, 2001).

2.3.5.8 Criminal records

An association was found between alcohol problems and self-reported criminal behaviour in general population (Greenfield & Weisner, 1995). In their review Catalano et al. (2011) presented evidence for an association between unemployment and aggressive behaviour (Catalano et al., 2011).

2.3.5.9 Alcohol problems in childhood family

In a study on the effect of childhood adversities on heavy drinking in early adulthood Kestilä et al. (2008) found that being unemployed increased the risk for heavy alcohol consumption among those with childhood adversities (Kestilä et al., 2008). Furthermore, parents' alcohol problems have been associated with disability retirement in the adult offspring (Harkonmäki et al., 2007).

2.4 Identification of mental health disorders

The diagnostics of mental health disorders is differently challenged than diagnostics of somatic diseases. One of the special characteristics on the diagnostics of mental health disorders is a definitive importance of an identification. Patients seldom complain or suspect having mental health disorder. Instead, they have various general or physical symptoms like sleeping disturbances, fatigue or headache. Many people may find mental health symptoms too delicate to bring up since the stigma linked to them.

In most cases diagnostics in psychiatry is like piecing together a jigsaw. Before you can start, you must notice or identify all the pieces and collect them together but remember to exclude the pieces of another jigsaw puzzle, which means the differential diagnostics to physical health disorders. Moreover, people constantly have adequate emotional responses to different life phenomena around them and it is not easy to distinguish those relevant and natural emotional reactions, e.g. towards unemployment, from the emotional symptoms of disorders. The premise here is adequate identification.

The literature on the identification of mental health disorders, especially among unemployed people, is reviewed in the following paragraphs.

2.4.1 Identification of mental health disorders in health care

There is research on the identification of mental health disorders in HC but research on the identification of mental health disorders in unemployed people is scarce.

2.4.1.1 Identification of depression in health care

In the international study on the data of the WHO 'Psychological Problems in Primary Health Care' 42% of patients with depression were adequately recognised and diagnosed. The patients with recognised depression suffered from more intensive psychological distress and functional impairment than did those with unrecognised depression and recognition was associated with the severity of depression (Simon, Goldberg, Tiemens, & Ustun, 1999). In an Indian study the rate of appropriate diagnoses among primary care physicians was nearly the same 45%. A significant association of life stressors, especially financial stress, was found to accompany MDD (Pal, Oswal, & Vankar, 2018).

In a study from the Netherlands the detection rate of depression and anxiety disorders by GPs was higher, nearly 60%. The somatic symptoms, especially chest pain and greater severity of pain symptoms, were positively associated with the identification of depressive and anxiety disorders. Furthermore, somatic symptoms were not negatively associated with identification (Gerrits, Van Marwijk, Van Oppen, Van Der Horst, & Penninx, 2013). However, there is evidence according to which physical comorbidity is negatively associated with the identification of depression in primary care (Menear et al., 2015).

The recording depression diagnoses had also been demonstrated to change according to the unemployment rate. In the study by Kendrick et al. (2015) in the UK the number of recorded depression diagnoses decreased prior to economic downturn of 2008 and subsequently increased in years 2012-13 in line with the increased unemployment, especially among male employees (Kendrick, Stuart, Newell, Geraghty, & Moore, 2015).

In a meta-analysis of the recognition of depression by non-psychiatric physicians specificity was found to be high, over 80%, but sensitivity was under 40%. The statistically significant moderators for sensitivity were method of documentation, age of sample and date of publication. Sensitivity was higher in later studies among younger age-groups using as a method the documentation the physician diagnosis (Cepoiu et al., 2008).

Two-thirds of patients with MDD initially complain of somatic symptoms in primary care which explains the difficulties in the identification of depression in HC (Tylee & Gandhi, 2005). Among patients who visited GPs' drop-in clinics in primary HC, nearly one third of women with depression complained only of physical symptoms, most commonly symptoms of respiratory infection or musculoskeletal pain (Stromberg et al., 2008).

In a study on the identification of depression in primary care, the adjusted OR for unidentified depression was over six if a patient complained of physical symptoms and sought HC less than once per month. The OR increased over eight when the patient complained of pain even she/he visited HC frequently (Menchetti, Murri, Bertakis, Bortolotti, & Berardi, 2009).

The research on identifying depression, especially among unemployed people in HC, is scarce even if the increased prevalence of depression has been irrefutably demonstrated. In Finland, Lappalainen et al. (2018) found in their research among unemployed people that more than one out of ten were diagnosed in primary HC as having a mental health disorder. The mental health disorders were in second position after musculoskeletal disorders as a reason for visits to primary HC. Those who

visited specialised HC were the most frequently diagnosed with mental health disorders (Lappalainen, Mattila-Holappa, Yli-Kaitala, Hult, & Räsänen, 2018). Comino et al. (2000) demonstrated that unemployed patients visiting GPs have an increased risk for depressive symptoms and GPs have a crucial role in the identification of mental health disorders among unemployed people (Comino et al., 2000).

Harris, Harris and Shortus (2010) illustrated the 5A-model based on an earlier study by Goldstein et al. (2004) on managing multiple behavioural risk factors in primary care for dealing with unemployed patients in primary care. The model contains sections Assess – Advise – Agree – Assist – Arrange. The interest is in health and readiness to change as needed to improve one's health and employability status. Furthermore, Harris et al. (2010) suggested an active follow-up. Implementing the model requires HC personnel to extend their perspective from the biomedical basis towards a more holistic viewpoint (Goldstein, Whitlock, & DePue, 2004; Harris, Harris, & Shortus, 2010).

2.4.1.2 Identification of alcohol-related disorders in health care

GPs' sensitivity in the identification for co-occurring, self-reported, depression and alcohol misuse were 21% in an Australian study. The proportion identified was highest among severe or very severe misusers. Less than half of those who reported alcohol misuse in a self-rated questionnaire were identified by the GPs. The presence of chronic diseases and higher level of education decreased the likelihood of being identified (Hobden, Bryant, Sanson-Fisher, Oldmeadow, & Carey, 2018). Whereas in the USA among general medical practitioners asking about alcohol or drug use was connected to patient related features like male gender, young age, high level of education, coincident health problems, diagnosed mental health disorder and earlier classification as a problem drinker. However, after adequate identification of heavy drinking, most patients did not receive the appropriate interventions or follow-up (D'Amico, Paddock, Burnam, & Kung, 2005).

The identification of harmful or hazardous drinking (HHD) was poorer than that of alcohol dependence among GPs in primary care. Under-identification was even more apparent among men than in women and among younger age group, <25-year (Cheeta et al., 2008). The prevalence of HHD was 18% in New Zealand. Non-identification was more prevalent among men and in those under 25 years. In primary care GPs discussed alcohol with under 10% of patients with HHD (Foulds, Wells, Lacey, Adamson, & Mulder, 2012). Moreover, even if alcohol-related

problems are identified the documentation has reportedly been mostly missing (Kim et al., 2013). In preoperative assessment anaesthesiologists identified AUD in 7% of patients whereas the proportion determined by the Alcohol Use Disorders Identification Test (AUDIT) was 18% (Spies et al., 2008).

Sensitivity of clinician suspicion for HHD was 27% among primary care clinicians (Vinson, Turner, Manning, & Galliher, 2013), while in a meta-analysis of the recognition and recording of alcohol-related disorders by clinicians, diagnostic sensitivity in identification of AUD was 42% among GPs, 52% among hospital staff and 55% among mental health professionals. However, alcohol problems were accurately recorded in 27% in primary care records and in 37% in hospital records. The writers suggested an education for the HC staff and screening instruments like self-report tools to improve screening of alcohol-related problems in HC (Mitchell, Meader, Bird, & Rizzo, 2012).

The reasons behind the deficiency in identification of alcohol-related disorders may be related to patients, service providers or the service system. Qualitative methods have been used to describe the barriers to initiating discussions on alcohol in general practice. In a Finnish study seven categories were identified: 1. The sensitive nature of alcohol drinking, 2. The reason for the consultation, 3. Awareness of patient's alcohol problem, 4. Patient-related factors, 5. Availability of intervention tools, 6. Expectations of the effectiveness of interventions, 7. Lack of time (Aira, Kauhanen, Larivaara, & Rautio, 2003). In an English study, the problems with targeting the behaviour change were largely similar even if GPs reported routinely discussing alcohol consumption with their patients. Lack of time and the numerous reasons for the consultation inhibited GPs from active interventions with risky drinking patients (Rapley, May, & Frances Kaner, 2006).

2.4.2 Identification of mental health disorders in employment services

In employment services the work capacity of the jobseeker is a common problem. The staff in employment services is obviously not educated in identifying mental health disorders but through they assistance there would be a vantage position of rough screening on mental health disorders. The research on the theme, however, is scanty.

The prevalence of MDD was 34% and of minor depression 16% in a group of long-term unemployed people older than 50 years who were seeking assistance in

vocational reintegration from employment services in Germany (Pfeil et al., 2017). The prevalence was many times that at population level.

Case managers of job centres, who received training in identifying mental health disorders, successfully screened out the mental health disorders of young unemployed people. Among young unemployed people in Essen, Germany, a mental health disorder was diagnosed in 98% of the clinical sample and in 43% in the sample from job centres pre-selected by case managers. (Reissner et al., 2014).

Research on the identification of alcohol abuse in employment services is likewise scarce. There is a six-month follow-up study showing that a two-day course for employment counsellors increased their willingness to intervene in clients' alcohol- or drug-related problems and improved their confidence and ability to deal with those clients (Gossop & Birkin, 1994). Henderson et al. (2006) found in their study of welfare workers that official welfare policy, everyday working conditions, the nature of client relationships and the stigma attached to substance abuse accounted for the difficulties in identifying substance abuse among their clientele (Henderson, Dohan, & Schmidt, 2006).

2.5 Use of health care services among unemployed people

Knowledge of the use of HC services among unemployed people is inconsistent. On the one hand, there are several research findings of increased use of HC services (Bíró & Elek, 2020; Gabilondo et al., 2011; Honkonen et al., 2007; Jin et al., 1995; Kraut et al., 2000; Kroll et al., 2016; Lundin, Backhans, & Hemmingsson, 2012). The finding has been explained first by the distress connected to unemployment and second by the health selection hypothesis according to which selection to unemployment is not incidental but employed people with poor health will typically be selected to unemployment. On the other hand, some studies have reported decreased use of health services among unemployed people (Comino et al., 2000; Dryden, Williams, McCowan, & Themessl-Huber, 2012; Kroll et al., 2016; Lappalainen et al., 2018; Leino-Arjas, Kaila-Kangas, Keskimäki, Notkola, & Mutanen, 2002; Reissner et al., 2011; Virtanen, 1993; Virtanen, Kivimäki, Vahtera, & Koskenvuo, 2006). The finding is claimed to relate to the lack of occupational HC, the charges of health services and marginalization, e.g. in consequence of the social causation mechanism.

When studying the factors associated with the use of health services among people with CMDs, the evidence on unemployment and utilization of HC services was inconsistent in a systematic review (Roberts et al., 2018).

In a review article, focused on unemployed people, Jin et al. (1995) reported mainly increased use of HC services but association of usage varied from country to country depending on the availability of HC services. If services were universally available and free of charge the HC attendance was increased. Unemployment most often means financial strain and inability to pay for health services diverting those most in need of care to become the least likely to receive it (Jin et al., 1995; Lappalainen et al., 2018).

Comino et al. (2000) reported increased depression and increased prescription of medications by GPs in the treatment of depressive and anxiety symptoms among unemployed patients. Instead, the referrals to specialised HC were not increased among unemployed people. The authors deduced that GPs may treat their unemployed patients differently from employed patients (Comino et al., 2000). In a later study in Australia, unemployed people visited HC more seldom than employed people but when they did, they got the same treatment as did employed people (Comino et al., 2003).

In Finland a population-based survey indicated that long-term unemployed people visited physician less often than people in full- or part-time permanent or fixed-term employment or short-time unemployed people. Adjustments for perceived health or diagnosed long-term diseases did not significantly affect the results (Virtanen et al., 2006). In another Finnish study on the association of employment status with HC usage, the OR for treatment contact during previous 12 months for those with depressive disorders was two-fold and for those with alcohol-related disorders over 3.5-fold among unemployed people compared to employed and adjusted for age, gender, marital status and occupation (Honkonen et al., 2007). The data from Spain in a European study on the epidemiology of mental health disorders indicated that 59% of those with MDD had used HC services. Among unemployed people and the disabled health service usage was nearly five-fold (Gabilondo et al., 2011). In a Swedish study among middle-aged, men long-term unemployment was associated with hospitalization because of alcohol-related diagnosis. HR increased over 1.6 after adjustment for education, socio-economic status, income and sickness absence in the 12-year follow-up period (Lundin et al., 2012). The increased health expenditure after a mass lay-off was associated with increased health service usage among unemployed when compared to constantly employed people (Bíró & Elek, 2020).

Hospital admissions and ambulatory physician visits were increased among unemployed people. Hospital admissions were higher even before drifting into unemployment, mostly for mental health disorders (Kraut et al., 2000), whereas unemployed people were less often admitted to hospital for lumbar intervertebral disc disorders than were employed people in Finland (rate ratio 0.66; 95% CI 0.57-0.77) (Leino-Arjas et al., 2002).

Virtanen (1993) reported increase in HC visits among re-employed people but among those who remained long-term unemployed HC attendance remained at the same level (Virtanen, 1993). Lappalainen et al. (2018) reported that 7% of long-term unemployed people had not used primary HC services at all during the previous four years. Refraining from visits to HC correlated with duration of unemployment (Lappalainen et al., 2018). In a Swedish, population-based study the OR for unemployed people abstaining from consulting a physician was nearly two-fold compared to employed people after adjusting for long-term illnesses. The risk was associated with the symptoms of depression (Åhs & Westerling, 2006).

In Germany among young, under 25-year-old, prescreened long-term unemployed people suffering from mental health disorders 40% had ever been in contact with mental HC services. Within the preceding three months, 12% had been in touch with psychiatric outpatient care and half of them had received more or less regular treatment. Psychopharmacological treatment was offered less than one out of ten (Reissner et al., 2011).

According to the GEDA 2010 and 2012 -study (Gesundheit in Deutschland aktuell) long-term unemployed people attended preventive health interventions, like health check-ups, more rarely but visited GPs and hospital more often and stayed longer in hospital than employed people (Kroll et al., 2016). Unemployed people were over-represented in the non-attendees group in a review which studied attendance at health check-ups (Dryden et al., 2012).

Untreated mental health problems seemed to be frequent among older long-term unemployed people sent to a centre for psychosocial coaching in Munich, and over 40% showed signs of mental health disorders. The most frequent were affective disorders were followed by anxiety and alcohol-related disorders. Of those with mental health problems over 60% did not get adequate treatment for the disorder (Bühler et al., 2013). Depression per se has been shown in population based studies to increase the risk for rare visits to HC (Hämäläinen et al., 2004).

The use of HC services is erratic among homeless people and they are one of the hardest groups to reach (Shaw, 2004). The use of HC services has been shown to

have increased among homeless people, but the usage of some services such as psychiatric outpatient services seems to have decreased (O'Brien et al., 2015).

Whether or not the number of visits to HC has increased, problems in identifying care needs among unemployed people have become apparent (Åhs et al., 2012; Kerätär et al., 2016; Madureira-Lima, Reeves, Clair, & Stuckler, 2018). In a study by Kerätär et al. (2016) the care needs were unmet among the half of those unemployed people who involved in the work ability assessment in a rural area of Finland (Kerätär et al., 2016). The unmet medical needs also correlated with the unemployment in a study on several European countries. The correlation was the stronger, the higher the HC payments were. Unmet medical needs seemed therefore to be connected to financial strain resulting from unemployment. The findings of the study refer to the growing inequality between employed and unemployed people concerning HC services (Madureira-Lima, Clair, Stuckler, & Reeves, 2018).

2.6 Ability to work among unemployed people

As demonstrated above, there is ample research describing impaired health among unemployed people. From this evidence it is logical to conclude that poor health has also attenuated the ability to work among unemployed people. Studies on the ability to work among unemployed people, however, seem scarce. Impaired physical and mental health restricts the functional and working ability of people. Health-related selection into unemployment is one of the explanations for decreased ability to work among unemployed people. Prolonged unemployment as such may also undermine the ability to work.

Self-reported work disabilities were three- to four-fold among unemployed compared to employed people in the Finnish Health 2000 Survey. In the same survey the duration of unemployment (>12 months) and the number of unemployment periods (≥3) during preceding five years were associated with deteriorated work ability. Even those with short-term unemployment found their work ability statistically significantly limited compared to employed people (Pensola et al., 2008). When long-term unemployment and health problems appear simultaneously, they may form a vicious cycle from which it is difficult to exit.

The ability to work is a multidimensional concept. Health is obviously the most central factor when assessing the ability to work. However, factors like perceived professional competency, working career and education are essential components of work ability. In particular, they play an important role in predicting the ability to

work or for rehabilitation and the chances of gaining re-employment among unemployed people. According to the Finnish Health 2000 Survey, the risk for restricted work ability decreased over 20% when the models were adjusted for education. Financial strain seemed to affect work ability even more strongly. The researchers stressed the significance of concomitant unemployment and poverty and suggested that society should focus on providing ample support to enhance the ability to work among unemployed people especially by promoting rapid re-employment (Pensola et al., 2008). In a study on ability to work among Finnish employed and unemployed people, financial strain was associated with work ability among both employed and unemployed people, albeit the effect was stronger among the unemployed (Saikku & Hannikainen, 2019).

The most essential factor associated with perceived good ability to work among unemployed people was good self-rated health. Also, a short spell of unemployment, living with young children, at maximum moderate physical and mental strain, and high satisfaction in the recent job were associated with good ability to work (Hult, Pietilä, Koponen, & Saaranen, 2018). Prolonged unemployment was connected with perceived deterioration in work capacity according to earlier studies (Pensola et al., 2008; Szlachta, Gawlik-Chmiel, & Kallus, 2012).

In a study on three European cities work ability correlated negatively with duration of unemployment and age (Szlachta et al., 2012). Self-assessed work inability predicted long-term sickness absence, DP and long-term unemployment in a Swedish follow-up study. When a person assessed his/her ability to work to be poor two years hence, the HR for long-term sickness absence increased to 2.25, for long-term unemployment spell to 2.18 and for DP to 5.19. The risks attenuated somewhat after adjustments for background factors but remained statistically significant (Lundin, Kjellberg, Leijon, Punnett, & Hemmingsson, 2016). In another Swedish study Hultin et al. (2012) reported that long-term sickness allowance, especially for musculoskeletal or mental health disorders, increased the risk for long-term unemployment and DP (Hultin et al., 2012).

In a study by Liira et al. (2000) work ability was somewhat lower among unemployed people than among employed people measured by the work ability index (WAI) (Liira et al., 2000). WAI is an instrument for measuring work ability according to seven indicators (Ilmarinen, 2007; Tuomi, 1998). Lappalainen et al. (2017) also used WAI as a measurement tool for work ability among young unemployed people in the Occupational Health Counselling Project in Finland. In adjusted multivariate models the risk for prolonged unemployment (>6 months) was statistically significantly increased among men and those with drug abuse. In

binomial and crude models, the risk was also increased among those without vocational education, with high level of distress, with mental health disorder and with impaired work ability (Lappalainen, Manninen, & Räsänen, 2017).

In a study by Bumann et al. (2020) duration of unemployment was not associated with self-assessed work ability. Heart rate variation and physical activity were related to work ability measured by one question on WAI, current self-perceived work ability, among long-term unemployed people in Germany. The findings refer to long-term unemployment as a chronic stressor and long-term distress as connected to mental and somatic disorders as presented earlier in this thesis (See 2.1.4.1). Bumann et al. (2020) also recommended promoting and facilitating the physical activity and exercise as well as a holistic approach in HC for unemployed people (Bumann, Niederer, Santarossa, Banzer, & Vogt, 2020).

In a follow-up study focusing on functional capacity and work ability among unemployed people, Savinainen et al. (2020) demonstrated that the physical, psychological and cognitive dimensions of functioning had statistically significant effect on work ability. The strongest association was with physical condition and functional and work capacity. (Savinainen et al., 2020).

Work capacity of unemployed people has also been studied from a biological perspective. Maier et al. (2006) studied work ability using a bicycle ergometric test and counting the serum levels of cortisol. Work capacity among short-term (≤12-month) unemployed persons decreased statistically significantly at one-year follow-up (Maier et al., 2006).

Self-rated good mental health, stable personal relationships, reasonable physical functioning and physical fitness were associated with good work ability in a study among long-term unemployed people in southern Finland. Good functional capacity, good physical condition, no long-term illnesses and confidence about finding a paid job were associated with good health in multinomial models adjusted for background variables and duration of unemployment. The differences in factors associated with good health and good functional capacity centred around positive aspects like positive mental health, life satisfaction and confidence about finding re-employment. The social dimensions were more centred on the question of good work capacity. The study also included a qualitative section. Twenty people participated in focused interviews. Content analysis was utilised for the categorization. According to the qualitative data rehabilitative activities were considered positive actions since they offered social contacts and daily routines, even if the they did not lead to permanent employment. Moreover, long-term illnesses were not associated with perceived health or work capacity in the quantitative data

even though in the qualitative data several participants emphasised health-related work disabilities. Many unemployed people would be willing to work if their long-term illness could be alleviated and if the work were adjusted to their health-related restrictions (Hult & Lappalainen, 2018).

Mental health issues have also played an important role in some other studies concerning the work ability of unemployed people. Work ability was impaired in 65% of participants with mental health disorders among unemployed people sent for medical work ability assessment by employment officials in north-eastern Finland (Kerätär & Karjalainen, 2010). Mental health was the only factor associated with predicted employment during the two-year follow-up when studying the job seeking resources (Taris, 2002).

According to earlier findings, several socio-demographic background variables seem to act as significant mediators and moderators between unemployment and work (dis)ability. These variables include age, marital status and education. Young unemployed people seem to be a risk group for decreased work capacity due to mental health disorders (Harkko et al., 2018). The OR for impaired work ability among unemployed people with compulsory schooling only (9 yrs) was greater in a Finnish study compared to those unemployed with longer education or to employed people (Saikku & Hannikainen, 2019). Among single people the OR for impaired work ability was greater compared to married/cohabiting unemployed people (Saikku & Hannikainen, 2019). Preventive measures for mental health disorders and promoting educational and employment opportunities should focus on this group (Harkko et al., 2018).

2.6.1 Work ability assessment among unemployed people

Work ability assessment demands an extension of the perspective beyond a purely medical point of view and is therefore often seen to fall outside the primary function of any HC system (Cohen, Marfell, Webb, Robling, & Aylward, 2009; Tuisku, Vuokko, Laukkala, Mäntynen, & Melartin, 2012). Physicians find the assessment of ability to work and related diagnostic evaluation demanding and complex according to a Norwegian study (Overland, Overland, Johansen, & Mykletun, 2008). The factors associated with working ability in relation to mental health disorders are especially multifarious (Tuisku et al., 2012). Even the rehabilitation professionals found several barriers to a mental health assessment in an international questionnaire study. Insufficient time was the most frequently reported obstacle (Juengst et al.,

2018). When the individual is out of working life, a work capacity evaluation may seem also relatively unnecessary. However, checking the health condition and the work ability of long-term unemployed person would be particularly worthwhile because, as demonstrated above, unemployment is known to be related to impaired health, poorer psychological well-being, risky alcohol consumption and impaired work capacity. The assessment of work ability may be complicated even for the unemployed person him-/herself since there is no job to which the ability to work could be compared. In particular, among unemployed people multi-professional cooperation is crucial in work ability assessment (Vuokko, Juvonen-Posti, & Kaukiainen, 2011)

Of those unemployed people older than 57 years who chose to receive unemployment benefit without active employment measures 60% reported as a reason for the decision poor health or other impediments (Wübbeke, 2013). Among long-term unemployed people employed in subsidised jobs about one third suffered from severe work disabilities (Kerätär, 1995). In her later study Kerätär et al. (2016) concluded that the assessment of work ability of unemployed people is a complicated and time-consuming process, but nevertheless worthwhile. The assessment should be organised multidimensionally, in multi-professional cooperation and according to the International Classification of Functioning, Disability and Health (Kerätär et al., 2016; World Health Organization (WHO), 2013).

There are also couple of studies describing feasible instruments for assessing work ability among long-term unemployed people. Liwowsky et al. (2009) used WHO-5 Well-Being Index version 2 and reported that nearly one fifth of long-term unemployed men, participating in work reintegration programme in Munich were diagnosed with MDD but none of them received antidepressant treatment. Of unemployed women with MDD half received no treatment for their depression (Liwowsky et al., 2009). Another instrument largely employed in the work ability assessment of long-term unemployed people is WAI as presented above (Lappalainen et al., 2017; Liira et al., 2000; Saikku & Hannikainen, 2019). Of the biological instruments available, heart rate variation as a measure of the psycho-physical strain has also been used (Bumann et al., 2020). Functional capacity measurement tools the Social and Occupational Functioning Assessment Scale (SOFAS) and the Sheehan Disability Scale (SDS) predicted return to work in one-year follow-up in a Finnish study among patients referred to work ability assessment for mental health disorders (Laukkala, Heikinheimo, Vuokko, Junttila, & Tuisku, 2018).

In recent decades there have been the following development projects:, Development Partnership Project on Health Care for the Long-term unemployed (PTT) 2007-10 to enhance the health care for unemployed people and MASTO project 2008-11 to reduce depression-related work disability in Finland (Saikku & Sinervo, 2010; Sinervo, 2009; Sosiaali- ja terveysministeriö[Ministry of Social Affairs and Health], 2011).

The MASTO project highlighted the arranging sufficient health services for unemployed people as did the PTT. PPT comprised local sub-projects in several areas of Finland for enhancing and developing health services for unemployed people. As a conclusion the project emphasized i.a. the organising of health services and health check-ups for unemployed people by municipalities and governmental control over the arrangement. The work ability assessment of unemployed people should be paid attention, especially at the beginning of unemployment. The assessment of work capacity should be taken care of over the unemployment period by employment services. Health care professionals should be educated for the identification of work disabilities of unemployed people. Disability and rehabilitation benefits should also be adequately matched to the needs of unemployed people. The assessment of eligibility for a DP should organize equally in national level (Saikku & Sinervo, 2010; Sosiaali- ja terveysministeriö[Ministry of Social Affairs and Health], 2011).

The Recent Action Plan for Rehabilitation proposed the obligation for districts or municipalities to organise the rehabilitation, health and social care assessment for unemployed people at regular intervals (Sosiaali- ja terveysministeriö [Ministry of Social Affairs and Health], 2020).

2.6.2 Unemployment and disability pension

In population-based studies the increased risk for DPs has been especially associated with certain disorders like musculoskeletal and mental health disorders. Age, gender and, in particular, education have been revealed as essential moderators (Ahola et al., 2011; Dorner et al., 2015; Ishtiak-Ahmed, Perski, & Mittendorfer-Rutz, 2014; Kaila-Kangas et al., 2014; Knudsen et al., 2010). There is moreover evidence of the cumulative risk for a DP in the co-occurrence of mental and musculoskeletal disorders (Kaila-Kangas et al., 2014). Of the mental health disorders, MDD in particular has been connected with high risk for ending up on DP. Among Finnish population as many as one fifth of those with diagnosed MDD were granted a DP

in five-year follow-up (Holma, Holma, Melartin, Rytsälä, & Isometsä, 2012). In a Norwegian study of a middle-aged cohort, women seemed to be at greater risk for DP than men. The factors related to self-perceived health, family or work demands did not explain the difference, whereas level of education seemed to be the mediator (Haukenes, Gjesdal, Rortveit, Riise, & Mæland, 2012).

In a Finnish five-year follow-up study the OR for DP was nearly three among long-term unemployed people compared to employed (Lamberg, Virtanen, Vahtera, Luukkaala, & Koskenvuo, 2010). In the same study depressiveness increased with the sociodemographic and somatic comorbidity factors adjusted OR for DP among employed from 1.86 in the case of mild to 3.75 in the case of severe depression. Correspondingly, among short-term unemployed people the adjusted OR increased from 2.83 to 19.92, while the adjusted OR decreased among long-term unemployed people from 9.76 with mild depression to 6.77 with severe depression (Lamberg et al., 2010). Interestingly, the correlation of severe depressiveness with DP was lower among long-term unemployed than short-term unemployed people, which may be associated with marginalisation from HC services or neglected work ability assessment among long-term unemployed people. Employed people without depression acted as a reference group.

Pirkola et al. (2019) studied those Finns who ended up on DP for mental health disorders. One tenth of them were included in the cluster of long-term unemployed people before sickness benefit and DP. Among them 14% had substance-related diagnoses (F1* according to the ICD-10) when the corresponding rate among previously employed people varied around 1%. Compared to employed people or students before permanent DP long-term unemployed people had the highest mortality rate in five-year follow-up and the lowest rate of return-to-work (Pirkola et al., 2019). According to a recent study by Laaksonen and Blomgren (2020) the risk for DP was increased among unemployed compared to employed people in a Finnish register study. In particular, the risk of retirement was increased for mental health disorders (Laaksonen & Blomgren, 2020).

Due to the similarity of social welfare systems in the Nordic countries parallel findings have been reported in all of them. In Sweden a study on peripheral labour market position the long-term unemployment increased the HR 2.08 and 1.96 for older women and men respectively for DP compared to that for employed people (Gustafsson, Aronsson, Marklund, Wikman, & Floderus, 2014). In Norway unemployment seemed to be an independent risk factor for DP. However, baseline health status, lifestyle and education attenuated the statistical significance thus suggesting that these factors may underlie both unemployment and DP (Støver et

al., 2012). In another Norwegian study, job loss more than doubled the risk for permanent disability retirement among men after a mass layoff compared to those in stable employment. The same trend was found in Hungary where the risk for going on disability benefits increased for 1.5-fold during the four years after laid-off (Bíró & Elek, 2020; Bratsberg, Fevang, & Røed, 2013). According to a study by Thorlacius and Ólafsson (2012) in Iceland, there was pressure out of the labour market towards DP among unemployed people with poor health during times of increasing unemployment (Thorlacius & Olafsson, 2012). Caswell and Kleif (2013) in Denmark argued that timing and individual tailoring should be at the centre of employment measures in order to reduce DPs among unemployed people with work disabilities (Caswell & Kleif, 2013).

Less is known about DPs as a consequence of alcohol-related disorders. Skogen et al. (2012) reported problem drinking as a strong predictor for DP and an identical higher risk also for abstainers. The findings were explained by the 'sick-quitter' hypothesis since previous excessive alcohol consumers had the highest HRs for DP. According to this publication, alcohol-related disorders had been acceptable reasons for DP since 1976 in Norway (Skogen, Knudsen, Mykletun, Nesvåg, & Øverland, 2012). Also, in a Swedish study heavy alcohol consumption seemed to be connected to the increased risk for DPs being granted. In Sweden, DP may be granted to 'a person whose working capacity is judged to be permanently diminished because of illness or other physical or mental impairment' (Upmark, Möller, & Romelsjö, 1999).

Unemployment at a young age was connected to increased risk for DP in 15-year follow-up both among immigrants and native Swedes referring to the so-called scarring effect of unemployment (Helgesson, Johansson, Nordqvist, Lundberg, & Vingård, 2013). Concerning the risk factors of DPs, parents' alcohol problems has been associated with disability retirement in the adult offspring (Harkonmäki et al., 2007).

There is slight evidence that exit from unemployment to DP increases well-being by resolving the economic uncertainty faced in prolonged unemployment. However, the study did not reach statistical significance (Strandh, 2000).

Despite the positive correlation between unemployment and DP, unemployment is also connected to a risk for a DP application being rejected. In a Swedish study unemployment was associated with OR over seven for rejections of DP applications (Ydreborg & Ekberg, 2004).

In Finland the reason may even lie in the legislation governing DP, which tends to have been written for employed people. According to Finnish law a full DP may be considered if a person is unable to work because of ill health if, the work ability

has been impaired at least 3/5 for a year continuously and work ability cannot be restored by treatment or rehabilitation. Other work-related factors such as employability should also be taken into account. Age also matters. Regarding those people 60 years and over only the professional work ability is assessed. It means that their work ability is assessed in relation to their usual work. There is no requirement through rehabilitation to find work in some other professional field.

Entitlement to a DP is determined by two statutes in Finland: The National Pensions Act and the Employees' Pension Act (Finlex.fi, 2006, 2007). The former contains general regulations and regulations for those people without noteworthy occupational history. The latter applies to people with occupational history. Involved in the Employees' Pension Act there are also regulations concerning a part-time DP. The part-time DP may be granted when the work ability is partially impaired, at least 2/5. However, in the EDIPE project the work ability of the attendees was assessed against full-time work since a partial DP would not have solved their problems with low employability and their economic situation might even have declined as a result of part-time DP (Finlex.fi, 2006).

In the case of substance-related disorders DP applications are investigated even more critically. The current Finnish care guideline on the treatment of alcohol abuse states that in order to be considered as a valid reason for granting a DP an alcohol dependence diagnosis necessitates co-existing severe physical or mental complications or alcohol dependence with serious and continuous social exclusion (The Finnish Medical Society Duodecim & The Finnish Association of Addiction Medicine, 2018).

As regards depression the current Finnish care guideline does not specify the criteria for DP as exactly as regards alcohol dependence. Cooperation with employment authorities is recommended when an unemployed person needs work ability assessment due to depression. However, in case of the work ability assessment for DP in depressive disorders the general criteria are valid whether the person is employed or unemployed. The disorder should fulfill the criteria of severe disorder and work disability should have lasted for at least a year. Notwithstanding correct earlier treatment and medical and professional rehabilitation work ability has not been regained. The functional capacity is decreased as is characteristic in depression (The Finnish Medical Society Duodecim & Finnish Psychiatric Association, 2020).

2.6.3 The EDIPE screening project

After the recession at the beginning of 1990's Finnish society focused more on long-term unemployment. The Act on Cooperation on Client Services within Rehabilitation was enacted in 2003, but the cooperation groups in client services within rehabilitation had been active ever since the 1990's at municipal level. An objective of those groups is to establish cooperation between health, social, employment, social insurance institution and other authorities involved to assist disabled rehabilitees to find their way to the workforce and employment (Finlex.fi, 2003).

Docent, psychiatrist and former member of the Parliament of Finland Ilkka Taipale initiated in 1990s cooperation with several employment offices in Finland in order to offer medical examinations to those long-term unemployed people who seemed to be incapable of work. The aim of Taipale's work was to assist eligible applicants to apply for a DP. The focus was especially on homeless alcoholics, who were among Taipale's key interests since the 1960s (Taipale, 1982). In 2001 he published a book 'The social medicine guidebook for screening the prerequisites for disability pension' about screening out from unemployed population those who had lost their ability to work (Taipale, 2001). In his book he focused mainly on the groups of elderly long-term unemployed people with long-term musculoskeletal diseases, on those with long-term mental or substance abuse disorders and those with primarily decreased resources for education and paid work. These groups have a low employability and no realistic rehabilitation resources. Furthermore, they are often inclined towards retirement (Taipale, 2001).

Based on the pioneer work by Taipale and because unemployment is known to be associated with impaired health and reduced work capacity, the Finnish Ministry of Labour arranged a nationwide screening project for long-term unemployed people entitled eligibility for a DP (Työministeriö [Ministry of Labour], 2004). The goal was to assess participants' work ability and provide a medical certificate in support of a DP application if it seemed justified. The criteria for inclusion in the EDIPE project were at least one year of unemployment and disability defined by the ILO convention no. 159 (International Labour Organisation, 2016; O'Reilly, 2003; Työministeriö [Ministry of Labour], 2004). In Finland the employment authorities can order a medical examination for an unemployed person if some medical concerns regarding the ability to work arise. They are also allowed to register those

diagnoses in their disability database. The project ran 2004-09 at national level in Finland. In Tampere EDIPE began as a pilot project in 2000.

2.6.3.1 Publications of the EDIPE project

Earlier publications of the EDIPE project are in Finnish only (Heikkinen, 2016; Männistö, Raivio, Rise, & Veijalainen, 2009; Taipale, 2001).

Taipale (2001) presented his ideas and the principles of the EDIPE process in his booklet Sosiaalilääketieteellinen eläke-edellytysten selvittelyopas [The social medicine guidebook for screening the prerequisites for disability pension] (Taipale, 2001). The procedure of the EDIPE process was based on Taipale's recommendations throughout Finland.

In their review of the execution of EDIPE process in two localities in Southern Finland Männistö et al. (2009) showed that DP was granted after EDIPE examinations to 53% and 66% of the applicants in two localities: the city of Espoo and the Kymenlaakso district respectively. The mortality of the examinees was as high as 17% in Kymenlaakso during two-year follow-up. Männistö et al. concluded that biographical information should be included in the decision-making process of the DP. They also stated that it is inappropriate, even inhuman, to classify those people with significant work disabilities and very low employability as unemployed and justified their perception with the changes in working life (Männistö et al., 2009). There is no longer any market for auxiliary work for the people with restricted ability to work as it used to be in those days when the Employees Pensions Act was introduced in Finland in 1960s. Moreover, Männistö et al. (2009) judged that the needs of people with substance abuse are poorly met in HC and that there is a need for special health services to be allocated to unemployed people. They concluded that the current criteria for DP do not meet the work disabilities of EDIPE clients and their marginalised position in the labour market and in society (Männistö et al., 2009).

The dissertation by Virpi Heikkinen MD, and subsequently PhD shares the material of this study. In her research Heikkinen (2016) analysed the heterogenous group of EDIPE clients in Tampere by utilizing and complementing the formation of qualitative narratives with quantitative methods. The main findings of the study were the seven typical narratives describing the people and their paths to the EDIPE project. In particular, the key dimensions for outlining the narratives are a health dimension, a career dimension and an HC attendance dimension. The most common narrative or client types were represented by two narratives: Raimo and Marjatta.

They have "a relatively long working history in physically demanding jobs and have gradually lost the working capacity due to cumulative physical illness". Furthermore, Heikkinen illustrates the EDIPE process exhaustively and impressively in the city of Tampere from 2001 to 2007 (Heikkinen, 2016).

3 AIMS OF THE STUDY

The aim of the study was to enhance the knowledge about identifying alcohol-related and mood disorders among long-term unemployed people with low employability and health impairment in HC and in employment services. In addition, the study aimed to shed light on the relation between identification of alcohol-related and mood disorders and granting DPs among those long-term unemployed people.

The specific research questions of the studies were as follows:

Study I: What difference is there between HC and employment services in identifying alcohol related disorders among long-term unemployed people with low employability and health impairment? Is there an association between alcohol disorders identified in HC or employment services and granting DPs?

Study II: Is the identification of depression in HC services associated with duration of unemployment among long-term unemployed people with a low employability and health impairment?

Study III: Is a project targeted at assessing the work ability of long-term unemployed people with low employability and health impairment able to detect undiagnosed depression? Is there any difference between HC identified and unidentified depression in the association with granting DPs?

Study IV: What kind of HC attendance styles can be identified among long-term unemployed people with low employability and health impairment? Is there a greater risk for deviant HC attendance style among long-term unemployed people with alcohol-related or depressive disorders?

4 MATERIAL AND METHODS

The data for this study were obtained from EDIPE project register data on a large number of long-term unemployed people with low employability and health impairment, a group which frequently falls into non-responders and drop-outs in other kind of research settings.

4.1 Data of the study

4.1.1 Data formation from the EDIPE screening project in Tampere

The study material was obtained from EDIPE investigations conducted in the Finnish city of Tampere, the third largest city in Finland with 240,000 inhabitants (Statistics Finland, 2020b). After the economic recession in Finland at the beginning of the 1990s, Tampere underwent a major structural change from basic industry to high-tech and the service sector (Business Tampere & Council of Tampere Region, 2020). Therefore, a lot of manufacturing industry workers became chronically unemployed.

The employment authorities screened all the long-term unemployed people (over 3000) in Tampere and referred altogether 973 long-term unemployed individuals to the EDIPE examinations during the years 2001-07. The EDIPE examinations consisted at least an interview with a psychologist, who collected comprehensive background information and information on the current situation in a participant's life and also the physician's examination. Whenever needed, specialist consultations, (neuro)psychological investigations, radiological investigations or laboratory tests were performed. The clinical examinations in the EDIPE project were performed by specialists in physiatry or occupational HC. Experienced psychiatrists assessed psychiatric diagnoses, which adhered to the criteria of ICD-10 (WHO, 2019). The EDIPE process in Tampere is described in detail in the dissertation by Virpi Heikkinen PhD entitled 'Long-term unemployed or permanently disabled – types

and narratives from an industrial town of the 2000s', in Finnish only, with English abstract (Heikkinen, 2016)

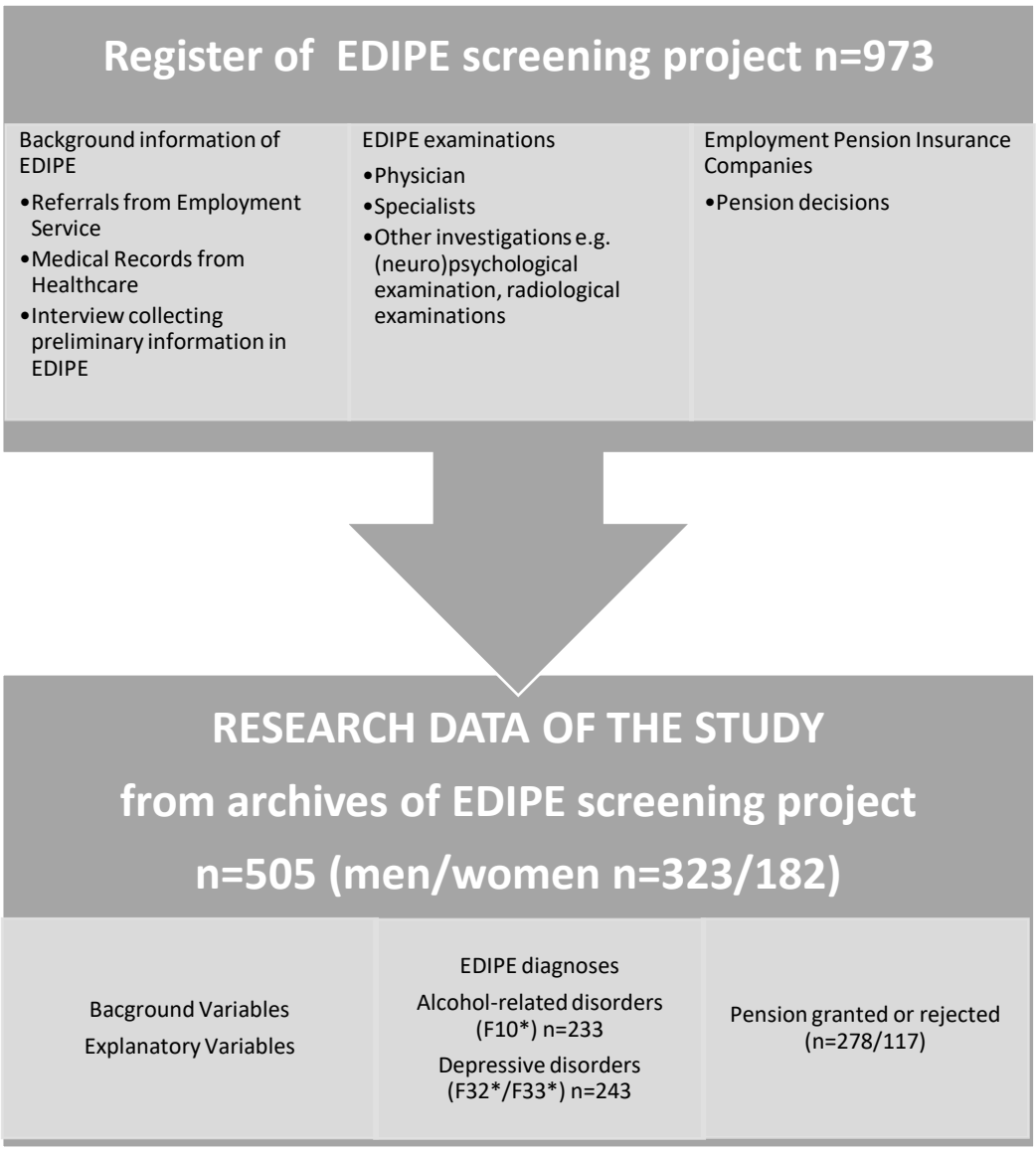

Figure 1. EDIPE project data sources and the Research Data

4.1.2 Research data

The data of the EDIPE screening project and the research data are illustrated above in Figure 1. The research data comprised medical records of the EDIPE project in Tampere in 2001-07. The information was systematically collected from the records of the project on all participants born between the 15th and 31st days of each month, 505 individuals in total. The research data was drawn from sources of the EDIPE project as follows: 1. Background variables: (a) referrals by an employment counsellor; (b) medical record information requested from primary and specialised HC; (c) self-administered questionnaire form of the basic characteristics, psychologist's interview in the EDIPE project, 2. Diagnoses: Information on the medical examinations and diagnoses in the EDIPE project, 3. Disability Pensions: Information on decisions on disability pensions; applied for, granted or rejected from employment pension insurance companies.

Men accounted 64% of all subjects (n=323). The mean age was 52 (Standard Deviation, SD 6.8) years, range 23-64 years. Of all subjects 75% (n=377) were single. In this selected, population 70% (n=356) had completed comprehensive school only. Learning difficulties at school were reported by 28% (n=142). Unskilled manual workers amounted to 18% (n=93), skilled manual workers 63% (n=317) and non-manual workers 16% (n=82). Criminal history was reported for 15% (n=77) of the subjects. Alcohol problems in the childhood family was reported for 24% (n=119). Average duration of unemployment was 11 (SD 5.6) years, range 1-35 years.

All the distributions of background variables of the studies are presented in Table 1 and described in detail below.

4.1.3 Data Study I

Study I focused on the identification of alcohol abuse in HC and in employment services. Furthermore, the granting of DPs was analysed with respect to the alcohol abuse identification pattern. One of the targets of the EDIPE project was to assess eligibility for DP among marginalised persons with alcohol-related problems. Thus, it was hypothesised that HC does not identify those long-term unemployed people with alcohol abuse and eligibility for a DP. This study included research register information on a total of 505 participants collected from the archives of EDIPE project.

4.1.3.1 Outcome and main explanatory variables of Study I

Disability pension (DP). The outcome of the study was full DP granted. Based on this data a dichotomous DP variable (DP not applied for or rejected vs. granted) was formed. The groups in which DP was rejected and not applied for were combined as both could be classified as a group that was able to work.

Alcohol abuse identification pattern. Information on the identification of alcohol abuse in employment services (no/yes) was extracted from the referrals of the employment counsellors. The information might be based on the examinee's self-report, the employment counsellor's assessment on the basis of an interview or on a medical statement in the disability database of the employment authorities. The referrals by the employment officials contained only informal descriptions of alcohol abuse. There was unfortunately no real-time access to diagnoses in the disability register for the employment authorities.

The identification of alcohol abuse in HC (yes or no) was based on recorded diagnoses of alcohol abuse disorders (F10*) according to ICD-10 in the medical records information requested from primary and specialised HC for the EDIPE examinations. As among general population in Finland, the substance most generally abused apart from tobacco was alcohol, and among the individuals diagnosed were not many abusers of other substances alone.

The dichotomous variables 'Alcohol abuse identified in employment services' and 'Alcohol abuse identified in HC' were cross-tabulated to obtain a four-class variable: 1. No alcohol abuse identified; 2. HC identified; alcohol abuse in HC records only; 3. Employment services identified; alcohol abuse in the employment counsellors' referral only; 4. Alcohol abuse identifies in both HC and employment services; i.e. alcohol abuse in both sources. This 'Alcohol abuse identification pattern' was the main explanatory variable.

4.1.3.2 Background variables of Study I

Age. Age is shown as a four-class variable but was handled as a discrete variable in the analyses.

Marital status. Marital status was dichotomised to married or cohabiting and single, including unmarried, divorced and widowed.

Basic education. Education was dichotomised to compulsory schooling only and more schooling.

Learning difficulties. The variable of learning difficulties at school was dichotomous (no/yes). Information based on self-report.

Occupation. The occupational information was trichotomised to unskilled and skilled manual workers and non-manual workers, including entrepreneurs.

Duration of unemployment. Duration of unemployment was handled as a discrete variable in the multivariate models and presented in quartiles in bivariate analyses. Duration of unemployment refers to the continuous duration of the person being recorded in the employment services as an unemployed jobseeker before entering the EDIPE project. The unemployment period recorded might also include participation in active labour market policy measures, such as various courses or spells of rehabilitative employment.

Criminality. Information on this dichotomous variable (no/yes) was based on self-report.

Alcohol problems in the childhood family. The variable alcohol problems in the childhood family was a dichotomous (no/yes). The information was either self-reported or taken from the medical records.

4.1.4 Data Study II

A total of 243 participants, 48% of the sample, were diagnosed with MDD (F32* or F33* according to the ICD-10) in the clinical examination by a psychiatrist in the EDIPE examinations. The sample was classified into those who, according to the documents acquired from HC, had been diagnosed as suffering from MDD prior to entering the EDIPE project and labelled 'identified (in HC)' and those whose depression had not been diagnosed before the EDIPE project 'unidentified (in HC)'. After the results were published, it turned out that 15 participants whose HC records were missing, had been inaccurately classified as 'unidentified'. The final number of study subjects was 'identified' n=101, 'unidentified' n=127 and 'missing' n=15. The final number of study subjects was also n=228. However, the mistake did not essentially alter the study results. The mistake was not reported since it did not significantly affect the results. This summary presents the results of the analyses of those 228 long-term unemployed persons who were diagnosed with depression in EDIPE examinations and whose medical records from HC were accessible to us.

4.1.4.1 Outcome and main explanatory variables of Study II

Identification of depression. The dichotomous variable: Depression identified/unidentified in the HC was the outcome of the study. Those who, according to the documents acquired from HC, had been diagnosed as suffering from MDD prior to entering the EDIPE project were classified as 'identified' and those whose depression had not been diagnosed before the EDIPE project 'unidentified', excluding those 15 participants whose HC records were no longer available.

Duration of unemployment. The explanatory variable was duration of unemployment, which was handled as a discrete variable in the multivariate models and presented in quartiles in bivariate analyses.

4.1.4.2 Background variables of Study II

Gender, age, marital status, occupation and **duration of unemployment** were categorised as in Study I. See 4.1.3.2.

Homelessness. Information on homelessness was described by dichotomous variable (no/yes). Information of homelessness was self-reported.

Suicide attempts. Information on suicide attempts (no/yes) was gathered from the records of primary and specialised HC.

Health care attendance. Number of visits to HC during the preceding three years was taken from the HC records. The variable was categorised into four classes in the bivariate analyses but handled as a discrete variable in the multivariate models.

4.1.5 Data Study III

The research data of the Study III consisted of the medical records of 364 long-term unemployed people who were assessed in the EDIPE project as eligible for DP, who had applied for a DP and whose medical history documents were available for at least a three-year period prior to their joining the EDIPE project.

4.1.5.1 Outcome and main explanatory variables of Study III

Granting of a DP. The outcome of the study was the granting of a DP (no/yes).

Depression identification pattern. The main explanatory variable of the study on 'Depression identification pattern', was categorised as: 1. 'Depression diagnosis in EDIPE and in HC' included those diagnosed with depression both in the clinical examination of the EDIPE project and earlier in HC. 2. 'Depression diagnosis in EDIPE' included those diagnosed with depression in the examinations of the EDIPE project but not earlier in HC; the group was referred to as 'unidentified depression' and 3. 'No depression' included those who were not diagnosed with depression in the EDIPE examinations. Depression was defined according to category F3* in ICD-10 (WHO, 2019). The reference category was 'Depression diagnosis in EDIPE and in HC'.

4.1.5.2 Background variables of Study III

Gender, marital status, occupation and **duration of unemployment** were categorised as in Study I. See 4.1.3.2.

Age was handled in quartiles in the bivariate analyses and as a discrete variable in the multivariate analyses.

Number of somatic diseases. The number of chronic somatic diseases was trichotomised in the bivariate analyses and in the multivariate models was handled as a discrete variable.

AUD on EDIPE. The variable 'Alcohol use disorder on EDIPE' consists alcohol abuse or alcohol dependence (F10.1 and F10.2 according to the ICD-10) diagnosed in the EDIPE examinations.

Health care attendance Number of visits to HC during the preceding three years was taken from the HC records. The variable was shown in quartiles in the bivariate analyses. In the multivariate models it was handled as a discrete variable.

4.1.6 Data Study IV

The material of Study IV consisted of the EDIPE project medical records of 498 long-term unemployed people. From the original population of the research data of the EDIPE project n=505, seven subjects had to be excluded since their information could not meaningfully categorised in the qualitative analyses of the health records.

4.1.6.1 Outcome and main explanatory variables of Study IV

Health care attendance style was the outcome in Study IV. Three categories of the variable were smooth, faltering and marginalised styles. The categorization is illustrated in detail in dissertation by Virpi Heikkinen PhD (Heikkinen, 2016).

Diagnosed depressive or alcohol-related disorder F3* or F1*, respectively according to ICD-10 (no/yes) in the EDIPE examinations were the main explanatory variables of the study.

4.1.6.2 Background variables of Study IV

Gender, age, marital status, occupation and **duration of unemployment** were categorised as in Study I. See 4.1.3.2.

Number of somatic diseases was categorised as in Study III. See 4.1.5.2.

Table 1. Background variables used in the studies.
Cases are missing from variables Marital status, Occupation and Basic education, marked with *. (HC=Health Care EDIPE= Eligibility for Disability Pension project)

	Study I		Study II		Study III		Study IV	
Background variables	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*
Total	505		228		364		498	
Gender								
Female	182	36.0	98	43.0	134	36.8	180	36.1
Male	323	64.0	130	57.0	230	63.2	318	63.9
Age								
23-39 yrs	32	6.3	12	5.3	..	..	32	6.4
40-49 yrs	95	18.8	44	19.3	..	..	94	18.9
50-59 yrs	339	67.1	158	69.3	..	..	333	66.9
60-64 yrs	39	7.7	14	6.1	..	..	39	7.8
Age								
24-39 yrs	..	..	..	..	23	6.3	..	..
40-49 yrs	..	..	..	..	69	19.0	..	..
50-59 yrs	..	..	..	..	247	67.9	..	..
60-63 yrs	..	..	..	..	25	6.9	..	..
Marital status*								
Single	127	25.1	165	72.4	265	72.8	371	74.5
Cohabiting	377	74.7	63	27.6	99	27.2	126	25.3
Occupation*								
Non-manual worker	82	16.2	41	18.0	56	15.4	80	16.1
Skilled manual worker	317	62.8	152	66.7	240	65.9	312	62.7
Unskilled manual worker	93	18.4	28	12.3	59	16.2	93	18.7
Duration of unemployment								
1-6 yrs	114	22.6	63	27.6	82	22.5	114	22.9
7-10 yrs	115	22.8	55	24.1	82	22.5	115	23.1
11-13 yrs	140	27.7	53	23.2	98	26.9	136	27.3
14-35 yrs	136	26.9	57	25.0	102	28.0	133	26.7
Criminality								
Yes	77	15.2	36	15.8	..	..	..	..
No	428	84.8	192	84.2	..	..	..	..
Basic education*								
Compulsory schooling	356	70.5	..	..	..	..	..	..
More schooling	77	15.2	..	..	..	..	..	..
Learning difficulties								
Yes	142	28.1	..	..	..	..	..	..
No	363	71.9	..	..	..	..	..	..
Alcohol problems in the childhood family								
Yes	119	23.6	..	..	..	..	..	..
No	386	76.4	..	..	..	..	..	..
Suicide attempts								
Yes	..	..	48	21.0	..	..	..	..
No	..	..	180	78.9	..	..	..	..
Visits to HC (in past 3 yrs)								
0	..	..	36	15.8	..	..	..	..
1-6	..	..	62	27.2	..	..	..	..
7-13	..	..	72	31.6	..	..	..	..
14-89	..	..	73	32.0	..	..	..	..
Visits to HC in quartiles (in past 3 yrs)								
0-3	..	..	..	..	87	23.9	..	..
4-7	..	..	..	..	87	23.9	..	..
8-13	..	..	..	..	98	26.9	..	..
14-72	..	..	..	..	92	25.3	..	..
Homelessness								
Yes	..	..	17	7.4	40	11.0	..	..
No	..	..	211	92.5	324	89.0	..	..
Number of somatic diagnoses on EDIPE								
0	..	..	..	..	11	3.0	39	7.8
1-3	..	..	..	..	184	50.5	240	48.2
≥4	..	..	..	..	169	46.4	219	44.0

4.2 Methods of the study

The data was analysed by quantitative methods in Studies I-III. In Study IV both quantitative and qualitative methods were utilised. The statistical analyses were carried out using SPSS/Win software (versions 19.0-25.0 SPSS inc., Chicago, IL, USA). The methods of the studies are presented in Table 2.

Table 2. Methods used in the studies. (DP=Disability Pension MDD=Major Depressive Disorder HC=Health Care EDIPE= Eligibility for Disability Pension project)

		Quantitative analyses		Qualitative analyses
		Bivariate analyses	Multivariate analyses	
Study I				
	Methods	Pearson's chi-square test Fischer's exact test	Binomial logistic regression	
	Outcome variable(s)	Alcohol abuse identification pattern DP granted	DP granted	
Study II				
	Methods	Pearson's chi-square test Fischer's exact test	Binomial logistic regression	
	Outcome variable	Identification of MDD	Unidentified MDD	
Study III				
	Methods	Pearson's chi-square test	Binomial logistic regression	
	Outcome variable	Depression diagnosed in HC and/or EDIPE vs. No depression	DP granted	
Study IV				
	Methods	Pearson's chi-square test	Multinomial regression	Typological analysis Categorization of HC attendance styles
	Outcome variable	HC attendance styles	HC attendance styles	

4.2.1 Statistical methods Study I

Bivariate comparisons were made first between sociodemographic background variables (gender, age, marital status, occupation, education, learning difficulties at school, duration of unemployment, criminality and alcohol problems in the childhood family) and the alcohol abuse identification pattern and secondly between background variables and DPs granted. Pearson's chi-square and Fisher's exact tests

were used for comparison of the categorical values. Statistical significance was determined with p-value <0.05.

The association of the explanatory variable, the alcohol abuse identification pattern, with the dependent variable, DPs granted, was analysed by binomial logistic regression analysis. The category 'no alcohol abuse identified' operated as a reference category. The associations were described by ORs and corresponding 95% confidence intervals (CI). Statistical significance was determined with p-value <0.05. The models were composed as follows:

- Model 1: Crude model
- Model 2: Adjusted for sociodemographic background factors: gender, age, marital status and occupation
- Model 3: Adjusted for the variable with independent association with DPs granted: alcohol problems in the childhood family
- Model 4: Adjusted for all background variables associated with alcohol abuse identification pattern or DPs granted in bivariate comparisons: gender, age, marital status, learning difficulties at school, occupation, duration of unemployment, criminality and alcohol problems in the childhood family

4.2.2 Statistical methods Study II

The methods used in Study II followed those presented in Study I. In bivariate analyses the comparisons of background variables with identification of MDD were analysed by Pearson's chi-square and Fisher's exact tests. Statistical significance was determined with p-value <0.05.

Risk for unidentified depression in relation to duration of unemployment was analysed by binomial logistic regression. In the regression models the association of the explanatory variable 'duration of unemployment' as a continuous variable with the dependent variable 'identification of MDD in HC' was described by OR per one year of unemployment and 95%CIs. Statistical significance was determined with p-value <0.05. The logistic regression models were run as follows:

- Model 1: Crude model.
- Model 2: Adjusted for sociodemographic characteristics: age, gender, marital status
- Model 3: Adjusted for variables with statistically significant difference from identification of MDD in bivariate analyses: homelessness, suicide attempts, number of visits to HC in last three years

- Model 4: Adjusted for variables related to social exclusion: gender, marital status, occupational status, homelessness, criminal record
- Model 5: Adjusted for variables related to use of HC: number of visits to HC, age, gender, suicide attempts
- Model 6: Adjusted for full model: age, gender, marital status, occupational status, homelessness, criminal records, suicide attempts, number of visits to HC in last 3 years.

4.2.3 Statistical methods Study III

Pearson's chi-square test was used to explore the relations between background variables and 'Depression identification pattern' in bivariate analyses. The 'Depression identification pattern' acted as an explanatory variable in the binomial logistic regression analyses, with 'Depression identified in HC' as a reference category and 'Granting of a DP' as a dependent variable. The results were expressed by ORs and their corresponding 95%CIs. Statistical significance was determined with p-value <0.05. Possible mediating factors were tested by adjusting for various sets of the background variables as follows:

- Model 1: Crude model
- Model 2: Adjusted for sociodemographic characteristics: age, gender and marital status
- Model 3: Adjusted for: age, gender, marital status and number of visits to HC
- Model 4: Adjusted for: age, gender, marital status, number of visits to HC and number of somatic diagnoses in EDIPE
- Model 5: Full model, adjusted for: age, gender, marital status, occupational status, duration of unemployment, number of visits to HC, number of somatic diagnoses in EDIPE and AUD in EDIPE.

4.2.4 Methods Study IV

In Study IV mixed methods were utilised to explore the connections of depression and alcohol-related disorders to HC attendance by combining the qualitative with quantitative methods.

4.2.4.1 Qualitative methods

The dependent variable 'HC attendance style' was formulated by a qualitative method (Given, 2008; Palinkas, Horwitz, Chamberlain, Hurlburt, & Landsverk, 2011). A group work was utilised in the qualitative analysis. The group was composed of three senior researchers, three doctoral students and two working life experts. The EDIPE records of 50 randomly selected participants were read and characterised by two researchers independently of each other with informal, brief descriptions. As a result of this collective reading of the medical records, HC attendance style was tentatively illustrated e.g. "intensive", "fixated", "paranoid", "self-willed" or "adequate". The nature of the individual's commitment and cooperation with HC might also be described e.g. "a passive object", "disappointment with services" or "lost hope". Next, a group of one senior researcher and the doctoral students further processed and categorised those characterisations. Finally, they assigned the characterisations to three categories describing the HC attendance styles: smooth, faltering and marginalised style.

In the next phase the appropriateness of the categories was harmonised. Two researchers independently classified each client into one of the three HC attendance style categories. In case of non-concurring classifications, the classification principles and criteria were specified until the classifications were congruent. Seven participants, two women and five men, could not be categorised due to lacking information and they had to be excluded from the final analyses (n=505→n=498). The classification formed was then applied to the rest of the study sample by one of the junior researchers in the research group. The method is described in detail elsewhere in Finnish in the study by Virtanen et al. (1997) and in the dissertation by Virpi Heikkinen PhD (2016) (Heikkinen, 2016; Virtanen et al., 1997).

4.2.4.2 Quantitative methods

Pearson's chi-square test was used to analyse the associations between the background variables and the HC attendance styles. The associations between mental health and attendance style, separately for alcohol-related and depressive disorders, were analysed by multinomial logistic regression models. Those with no psychiatric diagnosis in the smooth category were set as a reference category. The results are presented as relative risk ratios (RRR) and their 95%CIs. Statistical significance was determined with p-value <0.05. The analyses were run first unadjusted, and then adjusted for four sets of background variables:

- Unadjusted model.
- Model 1: Adjusted for gender and age
- Model 2: Adjusted for gender, age and occupational status
- Model 3: Adjusted for gender, age, occupational status and somatic morbidity
- Model 4: Adjusted for: gender, age, occupational status, somatic morbidity and duration of unemployment

4.3 Ethical issues

This is a register study and based entirely on documentary information from the medical records from the EDIPE project. There was no personal contact with the subjects of the study. Since the study subjects represent a vulnerable group of people, an ethical statement was requested from the ethics committee of Pirkanmaa Hospital District (ETL code R06032) and the research permission was duly granted by the registrar of the EDIPE project.

The data was analysed and reported mindful of ethical considerations and specifications.

5 RESULTS

The constituent results of the study are presented here according to the numerical order of the studies.

5.1 Identification of alcohol abuse and transition from long-term unemployment to disability pension (Study I)

In the study I there were two main study questions: What difference is there between HC and employment services in identifying alcohol related disorders among long-term unemployed people with low employability and health impairment? Is there an association between alcohol disorders identified in HC or employment services and granting DPs?

5.1.1 Identification of alcohol-use disorder in health care and in employment services

Alcohol abuse was identified in 41% (n=206) of the examinees. For 47% (n=96) of them alcohol abuse was identified both in HC and in the employment services. Alcohol abuse was identified in 36% (n=75) in HC only and in 17% (n=35) in employment services only. The group with no alcohol abuse identified 59% (n=299) might include both those with no alcohol abuse and those with no recorded alcohol abuse. This could not be confirmed in this kind of study setting.

Those identified with alcohol abuse were more often men, under 50 years old, single, unskilled manual workers. Their unemployment period had last over ten years. They had suffered from learning difficulties at school. They frequently had a criminal background and alcohol problems in the childhood family.

The group which alcohol abuse identified in HC only consisted more frequently of females, married people and subjects under 40 years old. Also, they had suffered more often from learning difficulties at school but had shorter unemployment

periods, less criminality and fewer alcohol problems in the childhood family than did those whose alcohol abuse was identified in employment services only.

'Alcohol problems in the childhood family' was the only background variable which showed a statistically significant association with the granting of DPs in bivariate analyses (p=0.033).

The result refers to the differences between HC and employment services in the identification of alcohol-related disorders. The employment services identify alcohol problems most likely in older very long-term unemployed single men whereas HC identifies alcohol-related disorders in younger persons, women and in those with shorter unemployment periods.

5.1.2 Granting a disability pension

According to the bivariate analyses, of those who applied (85%, n=431), DP was granted for 65% (n=278) and rejected for 27% (n=117). Information on the retirement decision was missing in 8% (n=36) of cases, which means the DP decision was sent only to examinees and, regardless of the particular permission, not to the EDIPE team. In the case of 12% (n=58) work ability turned out relatively good and DP was not applied for. The EDIPE process was discontinued in 3% (n=16) for unspecified reasons, in 1% (n=5) discontinuation was due to death. Of those 278 unemployed people who were granted DP, alcohol abuse had been identified in employment services, in HC or in both in 49% (n=135), in HC only in 19% (n=54) and in employment services only in 9% (n=25).

The only background variable independently and statistically significantly associated with DPs granted was alcohol problems in the childhood family.

5.1.2.1 Multivariate analyses

According to the unadjusted multivariate analysis, when alcohol abuse was identified in HC only, the OR for a DP being granted was 2.8 (95%CI 1.5,5.2) compared to those without identified alcohol abuse. After adjusting for socio-demographic variables (Model 2) the OR increased to 3.0 (95%CI 1.6,5.8). When adjusted for the variable with an independent association of a DP being granted (Model 3) the OR was 2.7 (95%CI 1.5,5.0). The OR was 2.9 (95%CI 1.5,5.6) and remained statistically significant after adjusting for background variables independently associated with the alcohol abuse identification pattern or with DPs granted (Model 4).

If alcohol abuse was identified in employment services only, the OR for a DP being granted was 2.3 (95%CI 1.0,5.1) in the crude model. In models from 2 to 4 OR remained essentially the same but the results no longer reached the statistical significance. When alcohol abuse was identified in both HC and in employment services, there were no statistically significant difference from those without identified alcohol abuse in the granting of DPs.

5.2 Identification of major depressive disorder among the long-term unemployed (Study II)

As stated above in 4.1.4 in the analyses of the original publication (Study II) 15 study subjects whose medical information was missing were erroneously included. There was also no knowledge whether depression was identified in HC or not. This chapter presents the corrected analyses based on the information of those participants whose medical records were accessible (n=228). Therefore, the numbers differ from those in the original publication. However, the mistake did not affect the statistical significance of the results.

Of the group diagnosed with MDD in the EDIPE project, men accounted for 57% (n=130). The mean age was 52 (SD 6.3, range 29-64) years. Single people were 72% (n=165) and manual workers, skilled or unskilled, amounted to 79% (n=180). Their unemployment had continued for a very long time, on average ten (SD 5.8) years and at maximum 35 years. The distributions of the background variables are presented in Table 3.

Of those 228 with MDD diagnosed in EDIPE, 9% suffered mild, 55% moderate, 21% severe, 1% psychotic depression and in 14% the severity of MDD remained unspecified. Recurrent depressive episode was discovered in 11% and psychiatric comorbidity in 79% of participants.

Identification of MDD in HC among homeless persons tended to remain lower than among those participants with a permanent residence (18% vs. 46%, p=0.023). MDD was identified more commonly among people with suicide attempts (60% vs. 40%, p=0.014), as well as among those with higher number of visits to HC (p<0.001). Of the study population 9% had not visited HC at all in the three years prior to the EDIPE project, 5% of women and 12% of men, and of those whose depression remained unidentified 13% had not used any HC services. Identification of MDD was more frequent when there had been at least 14 visits to HC during the three years preceding the EDIPE project, compared to 1-6 or 7-13 visits, 64% vs.

32% and vs. 40%, respectively. Mean duration of unemployment was 11 years (SD 5.7) and nine years (SD 5.9) among those with unidentified and identified MDD ($p=0.014$) respectively.

According to the health records the participants had ongoing and/or past mental health or substance abuse care as follows: Antidepressive medication had been prescribed for 61% of the study group. A regular psychiatric treatment relationship had been ongoing in 22% of individuals, but intensive psychotherapy in only 3%. Psychiatric inpatient treatment was being given to 16% of participants and outpatient care to 49%. Outpatient substance abuse services were visited by 31% and in inpatient detoxification care was undergone by 26% of the participants.

Table 3. Association of the background variables with the identification of major depressive disorder (MDD) in health care (HC). The identified MDD refers to MDD diagnosed in clinical psychiatric examination in EDIPE (Eligibility for a Disability Pension) project.

	Identification of MDD				
	MDD identified in HC		MDD unidentified in HC		
	N	%	N	%	*p*
	101	44.3	127	55.7	
Gender					.141
Female	49	48.5	49	38.6	
Male	52	51.5	78	61.4	
Age					.458
23-39 yrs.	7	6.9	5	3.9	
40-49 yrs.	21	20.8	23	18.1	
50-59 yrs.	69	68.3	89	70.1	
60-64 yrs.	4	4.0	10	7.9	
Marital status					.374
Single	70	69.3	95	74.8	
Married/cohabiting	31	30.7	32	25.2	
Occupational status[†]					.165
Non-manual worker	19	18.8	22	17.3	
Skilled manual worker	63	62.4	89	70.1	
Unskilled manual worker	17	16.8	11	8.7	
Homelessness					**.023***
No	98	97.0	113	89.0	
Yes	3	3.0	14	11.0	
Criminal record					1.000
No	85	84.2	107	84.3	
Yes	16	15.8	20	15.7	
Duration of unemployment					**.016***
1-7 yrs.	35	34.7	28	22.0	
8-10 yrs.	25	24.8	30	23.6	
11-13 yrs.	14	13.9	39	30.7	
14-35 yrs.	27	26.7	30	23.6	
Previous suicide attempt					**.014***
No	72	71.3	108	85.0	
Yes	29	28.7	19	15.0	
Visits to health services in past 3 yrs.					**<.001***
0	5	5.0	16	12.6	
1-6	20	19.8	42	33.1	
7-13	29	22.8	43	33.9	
14-89	47	46.5	26	20.5	

[†]Cases are missing

*Bold face indicates statistical significance p<0.05

In the binomial regression analyses the OR per one year of unemployment for unidentified MDD was 1.051 (95%CI 1.003,1.102). This means a higher risk for

unidentified MDD among those with longer duration of unemployment. If unemployment had continued for five years, the OR for unidentified MDD increased to 1.282 and after ten years of unemployment to 1.644.

The regression models were conducted to exclude the potential confounders. Throughout adjustments the result remained at the same level. Model 2 was adjusted with sociodemographic background variables age, gender and marital status. The OR remained almost the same at 1.050 (95%CI 1.000,1.102). Model 3 was adjusted for the variables with statistically significant difference found in the bivariate analyses – homelessness, suicide attempts and number of visits to HC. The OR was 1.055 (95%CI 1.002,1.110). In Model 4, which was adjusted for variables associated with social exclusion, gender, marital status, occupation, homelessness and criminal record the OR was 1.073 (95%CI 1.018,1.130). In Model 5 the adjustment was run for variables associated with the use of health services, number of visits to HC, age, gender and suicide attempts. The OR reached the same level 1.057 (95%CI 1.005,1.113). Model 6, as a full model, was adjusted for all the background variables in models from 2 to 5. The OR was 1.075 (95%CI 1.017,1.137). According to the results, the longer the unemployment spell grows, the worse the identification of depression in HC gets. The regression models are shown in Table 4.

Table 4. Association of duration of unemployment, as a discrete variable, with unidentified major depressive disorder (MDD) in health care (HC) in the crude model and in the multivariate models adjusting for several potential confounders described by odds ratios (OR) per one year of unemployment and 95% confidence intervals (95%CI)

	OR/1 year of unemployment	95%CI
Model 1 Crude model	1.051	1.003;1.102
Model 2 Adjusted for sociodemographic characteristics: Age, gender, marital status	1.050	1.000;1.102
Model 3 Adjusted for variables with statistically significant difference from identification of MDD in bivariate analyses: Homelessness, suicide attempts, number of visits to HC in last 3 years	1.055	1.002;1.110
Model 4 Adjusted for variables associated with social exclusion: Gender, marital status, occupational status, homelessness, criminal record	1.073	1.018;1.130
Model 5 Adjusted for variables associated with use of HC: Number of visits to HC in last 3 years, age, gender, suicide attempts	1.057	1.005;1.113
Model 6 Full model. Adjusted for: Age, gender, marital status, occupational status, homelessness, criminal records, suicide attempts, number of visits to HC in last 3 years	1.075	1.017;1.137

5.3 Identification of depression and screening for work disabilities among long-term unemployed people (Study III)

A total of 364 participants of the EDIPE project were considered eligible to apply for a DP. They comprised the study group in Study III. Men accounted for 63%, the mean age was 53 (SD 6.6, range 24-63) years, 73% were single and 82% were manual

workers, skilled or unskilled. Unemployment had lasted on average 11 (SD 5.5, at maximum 35) years. They had made on average 11 (SD 10.4, range 0-72) visits to HC in the three years prior to the EDIPE examinations, 9% having no visits at all and 24% having fewer than four visits. Almost everyone, 97% had at least one diagnosis of somatic disease. Diagnosis of AUD was set for 48% of the participants.

In the examinations of the EDIPE project, depression was diagnosed in 52% (n=188) of the participants, and in 45% of them the depression had already been diagnosed in HC. Depression was less common among men at 48% than among women at 58% in the EDIPE project, but previously diagnosed depression was significantly more prevalent among women at 31% than among men at 19%. In addition to gender, depression diagnosis in HC was statistically significantly associated with shorter duration of unemployment (maximum six years), and high number of visits (upper quartile, ≥14) to HC during the preceding three years.

A DP was granted to 68% of the applicants. Among those whose depression was identified both in EDIPE and in HC, DP was granted to 54%. Among those whose depression was identified in EDIPE only DP was granted to 72%. Of the people with no depression the DP was granted to 73%.

In the bivariate analyses, DP was positively associated with the statistical significance of being single and of AUD diagnosed in the EDIPE project.

In the multivariate analyses the OR was 2.2 (95%CI 1.2,4.0) for DP granted among those with 'Depression diagnosis in EDIPE' (unidentified depression) compared to those with 'Depression diagnosis in EDIPE and in HC' (HC identified depression). After adjusting for the sets of background factors OR varied from 2.1 to 2.5 (95%CI 1.1-1.2,3.8-4.4) and the difference remained statistically significant. Moreover, the OR for being granted a DP was higher for those with 'No depression' than for those with 'Depression diagnosis in EDIPE and in HC' OR=2.3 (95%CI 1.4,4.0). In the adjusted models OR varied from 2.2 to 2.6 (95%CI 1.3-1.4,3.8-4.3). In the full model adjusted for age, gender, marital status, occupational status, duration of unemployment, number of visits to HC, number of somatic diagnoses on EDIPE, and AUD diagnosis on EDIPE. Among those with depression diagnosed in EDIPE only the OR to DP granted was 2.2 (95%CI 1.1,4.3) and for those without depression OR was 2.3 (95%CI 1.3,4.2) compared to those with depression diagnosed both in EDIPE and in HC.

The results revealed that those long-term unemployed people with unidentified depression and with work disabilities had an increased likelihood of being granted a DP compared to those long-term unemployed people with HC identified depression.

Those long-term unemployed people with no depression had also an increased likelihood for granting a DP.

5.4 Healthcare attendance styles among long-term unemployed people with substance-related and mood disorders (Study IV)

This study used the data records of 498 clients of the EDIPE examinations. More than half (64%) of the study participants were men. The age range was from 23 to 64 (mean 52 years, SD 6.9) years. Three out of four were single. The majority, 84%, were manual workers. Duration of unemployment was long, on average 11 years and up to 35 years. Physical health problems were common. Only 8% passed the EDIPE examinations without somatic diagnoses, while 22% (n=111) were not diagnosed with any mental health disorder. Substance-related disorder was diagnosed in 48% of the participants, and 94% of those had AUD. Mood disorder (F3*) was found in half of the participants (n=246) and 97% (n=238) of them suffered from recurrent or non-recurrent MDD (F32* or F33* according to ICD-10). According to the records obtained from various HC institutions the substance-related disorder had been diagnosed earlier in HC in 64% and mood disorder in 45% of those for whom that diagnosis was set in the EDIPE examinations.

As the result of qualitative analysis, the HC attendance style categories emerged follows: The smooth style HC attendance category was defined as appropriate use of health services. The faltering style category could be described as a vacillating or unstable style of HC use. The marginalised style category included in those long-term unemployed people who had obvious medical problems with apparent need for care but who had not used health services. The exact descriptions of the categories of HC attendance style are presented in Table 5.

Of all participants, 45% were categorised as having the smooth HC attendance style, 30% the faltering and 25% the marginalised style. Among those with substance-related disorder diagnoses, about a quarter had the smooth attendance style, whereas the corresponding proportion was about a half among those with mood disorder.

The multinomial logistic regression analyses showed that compared to participants with the smooth attendance style and no mental health disorders, those with substance-related disorder had increased risk for faltering RRR=10.08 (95%CI 5.23,19.43) and marginalised RRR=4.98 (95%CI 2.75,9.01) HC attendance. Adjusting for age, gender, occupation and somatic comorbidity reduced the relative

risk both for faltering style, RRR=5.07 (95%CI 2.48,10.37) and marginalised style, RRR=3.34 (95%CI 1.66,6.71) but did not alter the statistical significance of the results.

Likewise, among those with mood disorder the risk for having faltering attendance style, RRR=3.56 (95%CI 1.87,6.75) or marginalised attendance style, RRR=1.89 (95%CI 1.06,3.36) was statistically significantly increased. In the case of faltering style, the statistical significance remained throughout the adjustments: from RRR=2.57(95%CI 1.31,5.05) to RRR=2.74 (95%CI 1.38,5.44), while in the case of marginalised style the relative risks were reduced to a statistically non-significant level when sociodemographic variables were included but became significant when somatic comorbidity was added into the model RRR=2.40 (95%CI 1.21,4.78).

The results refer to the increased risk for faltering or marginalised HC attendance style among long-term unemployed people with alcohol-related or depressive disorder.

Table 5. Definitions of the categories on health care (HC) attendance styles formulated by qualitative methods. (DP=Disability Pension)

Smooth style	Faltering style	Marginalised style
Appropriate use of reception hours and emergency service	Appointments and emergency visits for unclear reasons	Obvious medical problems with apparent need for care but not using the HC services
Commitment to therapies	Doctor-patient or therapeutic relationships tenuous	Terminates treatment periods. Tries to return home from hospital as soon as possible
Attending check-up	Several appointments cancelled/missed	Cancels or misses appointments. Does not show up check-ups
Seeking medical consultation for medical problems	May attend appointments intoxicated or make appointments to get medication for abuse or to demand DP	Procrastinates seeking treatment. Ends up arriving at the hospital by ambulance
Usually gets remedy	Does not receive the medical aid desired	Does not receive the medical aid needed
Medical personnel find the style of use of the health services appropriate	Patient and/or healthcare professionals dissatisfied	Forced to seek care for poor health supported by relatives or authorities

6 DISCUSSION

The value of this study is largely in the unique register material on very long-term unemployed people. Moreover, the demand for the EDIPE project and via the project the need for this study was closely linked to a societal call to scrutinise a long-term unemployment, a structural phenomenon in Finnish society, and its association with mental health disorders and granting of DPs. Therefore, not only the results but also the material of the study are discussed next.

6.1 Material of the study

Most of the persons referred to work ability assessment on the EDIPE project were men. There is earlier evidence that men suffer from unemployment more than women, especially when the reason for unemployment is health related. Better adaptability to unemployment by women has been explained by the different roles of men and women in family and everyday life. Men are more often breadwinners and women are even nowadays mostly responsible for housekeeping in families. Thus, the arrangement offers women another satisfactory role in addition to their occupational role. Since gender equality has recently increased the labour market, the importance of work has become more central for the personal identity of women, too. Therefore the difference between genders has diminished. (Bambra & Eikemo, 2009; Barbaglia et al., 2015; Catalano et al., 2011; Ford et al., 2010; Jahoda, 1982; Kroll et al., 2016; McKee-Ryan et al., 2005; Norström et al., 2014; Paul & Moser, 2009; Rook et al., 1991).

Since the mean duration of unemployment was exceptionally long, the study subjects were older than those in most earlier studies. At the same time this older age group offered a longer 'follow-up' period. As the earlier medical record information was collected comprehensively, the medical data become more extensive among these older long-term unemployed people. In this study, as in several earlier studies, single persons were over-represented among unemployed people compared to general population (Alavinia & Burdorf, 2008; Kriegbaum et al.,

2011; Saikku & Hannikainen, 2019; Viinamäki, Koskela, Niskanen, & Arnkill, 1993a).

Low SES is a fairly inevitable consequence of long-term unemployment. In this study low educational background, learning difficulties and manual worker as occupational status indicated for low SES.

Employability is a broad concept which includes the ability to work and various other factors related to employment such as education, occupational career, special skills, personal feature, financial and family situation (Garsten & Jacobsson, 2013; Guilbert et al., 2016; Szlachta et al., 2012). Low employability was the crucial problem among all the participants in the EDIPE project and in most cases the health-related problems were not the only reasons leading to long-term unemployment.

Many people sent to the EDIPE project had already applied for a DP, but their applications had been rejected. Earlier studies have revealed the disqualification of DP applications to be more frequent among socially marginalised groups (Ydreborg & Ekberg, 2004). However, in this study 70% of those who applied for a DP and whose retirement decisions were available were granted a DP. At the same time, in general population the acceptance rate varied from 68% to 75% (Gould & Nyman, 2012). The result suggests adequate identification and selection of those with permanent work disabilities in the EDIPE project. Indirectly it also refers to the high quality of the EDIPE examinations. The fairly high percentage of successful DP applications also proves that among long-term unemployed people with health-related work disabilities there are many individuals whose work disabilities seem to go unrecognised in the HC system and who therefore remain without the adequate benefits to which they are entitled. Above all, the result indicates the need for the EDIPE project.

Alanko and Outinen explored the tendency of dualisation in employment policy measures in Finland around the turn of the millennium. They concluded that the activation measures favoured those unemployed people or people disabled by mental health disorders whose work ability and employability were less limited and further marginalised those deemed 'unwilling' or 'unable' to work. The latter group included mostly those people with long periods of unemployment or tenuous attachment to the labour force and those with difficulties in work capacity connected to mental health. Thus, they argued, the employment measures around the millennium seemed to increase the inequality between different groups of unemployed people. As one of these employment measures they mentioned the EDIPE examinations. However, they encouraged to further investigate the interaction of unemployment and mental health problems. (Alanko & Outinen, 2016).

I found the criticism of the dualizing employment measures by Alanko and Outinen justified. However, concerning people participating in the EDIPE examinations, it is good to keep in mind that the participants had mostly been marginalised for years, even decades, before the EDIPE examinations. From that point of view, a thorough medical examination and as a possible consequence the DP could be deemed as a stabilizing effect for those already belonging to one of the most marginalised groups in Finnish society. Research has shown the improvement in wellbeing in the transition from unemployment to retirement and explained the findings with the role theory according to which being unemployed is a deviant social role deleterious to wellbeing, whereas being retired is a socially more acceptable role (Hetschko, Knabe, & Schöb, 2014; Ponomarenko, Leist, & Chauvel, 2019; Strandh, 2000). Furthermore, being a long-term unemployed person is often socially more stigmatised than being a pensioner. Either way the EDIPE examinations served as an intervention although this is difficult to prove scientifically.

6.2 Main findings

Altogether, the results of the present study refer on the one hand to the adequate identification of alcohol-related and depressive disorders in HC but on the other hand to the insufficient consideration of work ability, especially among those long-term unemployed people with alcohol-related disorders or depressive disorders with comorbid physical disabilities. Partially the reasons may lie in the faltering or marginalised HC attendance styles among long-term unemployed people.

According to the findings of the study it seemed that HC services surely identify alcohol-related disorders in those unemployed people who would be eligible for a DP but do not launch an assessment for work ability among them. Employment officials offer some slight support for the identification from the perspective of eligibility for DP, but it seems that employment officials are aware of the needs of work ability assessment (Study I).

A notable proportion of those unemployed people with depression who would be eligible for a DP remains unidentified and without appropriate work ability assessment in HC. A significant comorbidity with somatic disorders seems to be associated with unidentified depressive disorders in those who would be eligible for a DP (Study III).

At least partially, the lacking work ability assessment among long-term unemployed people may be associated with challenges in the identification and

duration of unemployment: The longer the unemployment period grows, the more the non-identification of depression in HC increases (Study II). Furthermore, a notable proportion of depressed long-term unemployed people do not even visit HC.

As for problems with identification of depression or undertaking a work ability assessment, these processes may be associated with the HC attendance styles. There seems to be a propensity for faltering or marginalised HC attendance styles among long-term unemployed people with alcohol-related or depressive disorder (Study IV).

6.3 Findings of the study in relation to existing research

Along with global changes in work distribution research on unemployment has gathered a momentum in recent decades. However, there remain many unexplored areas in the field. Despite convincing evidence of the impaired health and unmet care needs among unemployed people, information on the identification of alcohol-related and mood disorders has been almost entirely lacking, likewise the information on the work ability of long-term unemployed people. This study contributes to the existing research on the identification of mental health disorders and on the granting of DPs among long-term unemployed people.

6.3.1 Identification of mental health disorders among long-term unemployed people

An association between unemployment and mental health disorders has been reliably demonstrated in numerous studies (Alavinia & Burdorf, 2008; Catalano et al., 2011; Comino et al., 2003, 2000; Dooley et al., 1994; Gallo et al., 2006; McKee-Ryan et al., 2005; Paul & Moser, 2009; Pfeil et al., 2017). According to the direction of causality there is support for both health selection and social causation hypotheses (Dooley et al., 1992, 1994; Jin et al., 1995; Kaspersen et al., 2016; Murphy & Athanasou, 1999; Stauder, 2019).

6.3.1.1 Identification of mental health disorders in employment services

Very little is known about the identification of mental health disorders in employment services. The studies by Gossop & Birkin (1994) and Henderson, Dohan & Schmidt (2006) offered evidence that education for employment or welfare workers enhanced their ability to identify alcohol- or substance-related disorders among unemployed people (Gossop & Birkin, 1994; Henderson et al., 2006). The study by Reissner et al. (2014) demonstrated that training for case managers in employment services improved their ability to identify mental health disorders among young unemployed people (Reissner et al., 2014).

Study I presented new knowledge about a little researched topic, namely the identification of alcohol-related disorders in the clients of employment services. The study demonstrated a lacking association between alcohol abuse identified in employment services and DPs granted. The finding could also be interpreted as early detection. It is possible that employment services detect a disturbance due to alcohol related disorders before the emergence of any serious physical or mental complications due to alcohol abuse. The criteria for granting DPs in case of alcohol-related disorders stress medical defects such as constant severe physical or mental disorders or serious alcohol dependence leading to severe social exclusion (The Finnish Medical Society Duodecim & The Finnish Association of Addiction Medicine, 2018). In any case, the employment services support somewhat the identification of those long-term unemployed people with alcohol-related disorders and eligibility for DP. According to the results, the identification of alcohol abuse in employment services among long-term unemployed people may serve to find some few new cases eligible for DP. However, HC has a crucial role in the identification of those long-term unemployed people with alcohol abuse who may have lost their ability to work and in guiding them to work ability assessment.

6.3.1.2 Identification of mental health disorders in health care

Identification of alcohol misuse and depression has been studied mostly in primary care settings. For instance, Hobden et al. (2018) studied the identification of alcohol misuse and depression by GPs. Most frequently, the identification of co-occurring depression and alcohol misuse was accurate among the heaviest drinkers, whereas identification of depression was most frequently identified when the alcohol misuse was mild (Hobden et al., 2018). The findings of Study I may be in the line with the findings of Hobden et al. (2018). Alcohol-related disorders were identified in HC

quite well among those long-term unemployed people who were granted a DP. This refers to the people with the most difficult alcohol-related disorders which met the criteria for DP (for the criteria, see 2.6.2). In the EDIPE process those people who were assessed to be unable to work because of alcohol-related disorders were examined thoroughly and deficits were detected in cerebral magnetic resonance imaging (MRI) and neuropsychological examination.

In contrast to the findings of Hobden et al. (2018) in Studies II and III, the number of GP visits was positively associated with the identification of depression. A conceivable explanation may be that in this study all visits to HC were counted instead of only visits to GPs in the study by Hobden et al. (2018) (Hobden et al., 2018). Lappalainen et al. (2018) demonstrated depression to be a frequent reason for primary care visits among unemployed people and consultations in specialised HC were mostly due to mental health reasons as presented in 2.4.1.1 (Lappalainen et al., 2018). The number of visits to HC was also associated with the identification of depression in a study among primary care patients by Menchetti et al. (Menchetti et al., 2009). As in the study by Simon et al., (1999) in Study III, too, the identification of depression was associated with the severity of depression when measured by suicide attempts (Simon et al., 1999). The population-based study by Hämäläinen et al. (2004) indicated that those with the most severe depression were most likely to visit HC, even if a considerable portion, over 40% of them dismissed any HC services (Hämäläinen et al., 2004). When bringing together these earlier findings with the findings of the present study the urgency of screening for depression among long-term unemployed people would seem to be an inevitable conclusion.

6.3.1.3 Identification of alcohol-related and depressive disorders among long-term unemployed people

There is a great deal so research on the association between alcohol-related disorders and unemployment and the identification of alcohol-related disorders in HC (Aira et al., 2003; Catalano et al., 2011; Cheeta et al., 2008; Claussen, 1993, 1999a; Dooley et al., 1992; Foulds et al., 2012; Henkel, 2011; Janlert & Hammarström, 1992; Jin et al., 1995; Khlat, Sermet, & Le Pape, 2004; Kriegbaum et al., 2011; Lahelma et al., 1995; Mitchell et al., 2012; Mossakowski, 2008; Rapley et al., 2006; Vinson et al., 2013; Virtanen et al., 2013). However, the combination of this knowledge seems to be lacking. Little is known about the identification of alcohol-related disorders among unemployed people. Study I revealed a good ability of HC to identify those

unemployed people with alcohol-related disorders and eligibility for a DP even if the DP application process was never launched.

It is a well-known fact that unemployed people have an increased risk for depression (Acevedo et al., 2020; Alavinia & Burdorf, 2008; Butterworth et al., 2012; Catalano et al., 2011; Comino et al., 2003, 2000; Dooley et al., 1994; Gallo et al., 2006; Herbig et al., 2013; McKee-Ryan et al., 2005; Mossakowski, 2009; Paul & Moser, 2009; Pfeil et al., 2017; Picakciefe et al., 2016; Stankunas et al., 2006). However, the previous knowledge about identification of depression among unemployed people in HC is scarce (Comino et al., 2000; Lappalainen et al., 2018). In particular, the association of the identification of depression with the duration of unemployment has hardly received any scientific attention (Bühler et al., 2013; Liwowsky et al., 2009).

Butterworth et al. (2012) demonstrated in their follow up study that poor mental health predicted unemployment. Nonetheless, there were differences between genders. Among women the risk for unemployment was increased, but among men the risk for prolonged unemployment alone was increased (Butterworth et al., 2012). In the study by Stankunas et al. (2006) in Lithuania the risk for depression was greater among long-term (>12 months) than short-term (<12 months) unemployed people. Among older, long-term unemployed males the risk for depression was statistically significantly increased compared to younger, short-term unemployed men and women (Stankunas et al., 2006). Mossakowski (2009) reported that longer unemployment spell predicted depressive symptoms among young adults in the USA (Mossakowski, 2009).

As the main finding of Study II was that prolonged duration of unemployment decreases the identification of depression, the study complemented the findings by Picakciefe et al. (2016) who reported an association of depression with duration of unemployment (Picakciefe et al., 2016).

There are findings from Germany of poorly identified depression among long-term unemployed persons, especially men, in coaching and work reintegration programmes (Bühler et al., 2013; Liwowsky et al., 2009). Based on the findings the researchers suggested screening for depression in employment offices.

The findings of the studies above demonstrate the increase in the prevalence of depression along with prolonged unemployment. After all, the findings of Study II refer to the risk for underdiagnosis, undertreatment and decreased possibilities for rehabilitation which, in turn, impair the likelihood of re-employment. Moreover, it consolidates the earlier findings of unmet care needs among unemployed people (Åhs et al., 2012; Åhs & Westerling, 2006).

The findings of Study III show that among unemployed people depression as a comorbidity with somatic health disorders seems to go unidentified in HC. On the contrary, those unemployed people who suffered solely from depressive disorder without somatic comorbidities appear to be guided to DP from health services perfectly well since no such group could be perceived among the EDIPE clients. According to Rizvi et al. (2015) depressive unemployed patients with somatic comorbidities are older and frequently treated in primary care whereas unemployed patients in tertiary HC for depression tend to be younger and seriously depressed (Rizvi et al., 2015).

It is also possible that the attitudes of HC personnel affect the identification of mental health disorders in unemployed patients. Personnel may deem depressive mood or excessive alcohol use as a self-evident correlate of unemployment and fail to recognise the need to further investigate possible mental health disorders in need of specific treatment. Moreover, active tackling of mental health issues is time-consuming and, as is commonly known, medical work in primary care is under almost constant time pressures. However, awareness of the multiple risks and early and active interventions against e.g. increased alcohol consumption would be crucial in HC since heavy drinking also predisposes to DP (Böckerman, Hyytinen, & Maczulskij, 2016; Salonsalmi, Laaksonen, Lahelma, & Rahkonen, 2012).

6.3.2 From long-term unemployment to disability pension

In recent population-based studies, mental health disorders have been one of the most prevalent reasons for granting DPs in Finland (Laaksonen & Blomgren, 2020; Laaksonen, Blomgren, & Gould, 2014; Pensola et al., 2008). A spell of unemployment precedes the transition to DP according to several studies (Laaksonen et al., 2014; Lamberg et al., 2010; Pirkola et al., 2019). Earlier unemployment was more prevalent among those who were granted a DP for mental health disorders compared to those with physical disorders as grounds for DP (Laaksonen & Blomgren, 2020). Moreover, peripheral labour market position has been shown to be associated with an increased risk for DP in a study at the population level (Gustafsson et al., 2014). Long unemployment period increased the risk for ending up with a DP and comorbid depressive disorder further increased the risk significantly in cases of both short- and long-term unemployment according to a Finnish study (Lamberg et al., 2010).

The association between the identification of alcohol-related disorders or depression with DP granted has not, to the best of my knowledge, been studied earlier among long-term unemployed people. Those patients with alcohol-related disorders who were entitled to a DP seemed to be adequately identified in HC, but the process for a DP application was not launched.

An interesting detail in the study was that the only background variable associated with statistical significance with DP granted was alcohol abuse in childhood family. The finding is in line with an earlier Finnish study which demonstrated that parents' alcohol abuse increased the risk for DP in adult offspring (Harkonmäki et al., 2007).

6.3.2.1 Lack of holistic work ability assessment among unemployed people

Work capacity is more easily affected by mental health disorders nowadays when the nature of work has changed along with automatization, growing cognitive and mental requirements and the need for effectiveness at work. The findings of a recent Finnish register study support that observation. The increased risk for DP due to mood disorder was associated with white-collar occupational status. The authors concluded that non-manual work has become more distressing and demanding in recent decades (Karolaakso, Autio, Näppilä, Nurmela, & Pirkola, 2020).

The recovery of work ability is mostly a complex and demanding process, requiring good motivation, time and trust for recovery. The goal is much more difficult to achieve when there is no work to which to return. Before the rehabilitation can be even planned functional and work ability assessment are essential.

The risk of neglecting work ability assessment is especially high among unemployed people since there are no job-related requirements necessitating a health assessment. In general, the prerequisite of the work ability assessment, especially concerning mental health disorders, is an accurate diagnosis (Tuisku et al., 2012). The defects in the identification of MDD among long-term unemployed people, as the results of Studies II and III indicate, are the reason for missing work ability assessment. The finding corroborates the conclusions by Kerätär et al. (2010, 2016) in acknowledging the need for work ability assessment, especially for mental health disorders (Kerätär & Karjalainen, 2010; Kerätär et al., 2016).

The interpretation of the findings of the study on identification of mood disorders and DPs granted is even more complicated. Contrary to expectations, the probability for granting the DP was lower among those with adequately identified mood disorder in HC compared to those without mood disorder or mood disorder

only identified in the specific work ability assessment for long-term unemployed people in EDIPE (Study III). The explanation for the finding could be that the HC services identify adequately unambiguous depression cases and guide them to apply for a DP. So, only those from HC with diagnosed MDD and the most complicated situation were selected for the EDIPE project. As reported in 5.4, 92% of the participants in the EDIPE project had comorbid physical health problems. Earlier studies have also demonstrated impaired health and work ability among unemployed people (Wübbeke, 2013). According to this, the results of Study III could thus be interpreted as challenges with a holistic approach in Finnish HC services, associated with the lack of work ability assessment among unemployed people with both mental and physical work disabilities. Moreover, the findings of this research suggest that among long-term unemployed people there may be a remarkable proportion of those who suffer from alcohol-related or mood disorder and are actually unable to work but the work ability assessment in HC has been missing. That is, the work disabilities of long-term unemployed people have not been properly identified in the HC. This finding proves the need for the EDIPE process in Finland.

The same interpretations which were suggested as reasons behind unidentified mental health disorders earlier in 2.6.1, could also serve as background factors of the missing work ability assessment. HC professionals as well as their unemployed patients may find work ability assessment unnecessary since there is no job to be had, and the assessment takes a lot of time and energy (Vuokko et al., 2011). At the same time, they also ignore the possibilities for pharmaco- and psychotherapeutic and rehabilitative interventions.

In the EDIPE project most of the participants had both physical and mental health disorders and there were just a few people who suffered from purely mental health problems. Indirectly, these findings may refer on the one hand to a well-functioning mental health service system. Mental HC seems to have an ability to screen out those unemployed people with solely depressive disorders and without essential physical health problems, who have lost their ability to work and to guide them to apply for a DP. Unemployed people with purely mental health disorders were therefore not even referred to the EDIPE project. On the other hand, the results may be an indication of the difficulties in HC and among employment officials to identify the concomitant depression among unemployed people with physical health disorders and work disabilities. Thus, depression would remain unidentified in those long-term unemployed persons with physical health disorders. This interpretation would explain both the results of Study III and the frequent rejections of participants' previous DP applications.

In their study Kerätär et al. (2016) found that over a fourth of their study group were unable to work. The study group consisted of long-term unemployed people who were sent to work ability assessment from a rural area in north-eastern Finland (Kerätär et al., 2016). In their earlier study from the same geographic area Kerätär and Karjalainen (2010) reported that more than three out of five long-term unemployed individuals had mental health disorders which decreased their functional capacity and nearly one out of six was eligible for a disability pension (Kerätär & Karjalainen, 2010).

Alcohol abuse often makes it even more difficult to evaluate the ability to work. Risky drinking predisposes to unemployment and decreases the prospects of re-employment, especially when unemployment is prolonged. Alcohol problems among unemployed people are demonstrably mediated by both health selection and social causation processes (Audhoe, Hoving, Sluiter, & Frings-Dresen, 2010; Claussen, 1993, 1999a; Dooley et al., 1992; Kaspersen et al., 2016). Heavy episodic drinking (over 60g pure alcohol on one occasion at least once a month) at age 16 increased the risk for subsequent unemployment among young Finns and Swedish males (Berg et al., 2018). Furthermore, alcohol abuse may impair employability particularly among long-term unemployed persons and its identification may be challenging.

Governmental pressure to improve employment opportunities of unemployed people in the recent years has been high in Finland (Government Programme. Marin's Government, 2019; Governmet Programme. Sipilä's Government, 2015). However, more research is needed to develop interventions to raise re-employment among them. The positive association with intervention programmes and improved mental health among unemployed people were demonstrated in the meta-analysis by Paul & Moser (Paul & Moser, 2009). Nevertheless, according to a review article by Audhoe et al. (2010) and a recent study by Hult et al. (2020) there is no reliable evidence as to which interventions are effective in enhancing the re-employment of unemployed people (Audhoe et al., 2010; Hult et al., 2020). Moore et al. (2017) suggested that job-club intervention could reduce the depressive symptoms among long-term unemployed people (Moore et al., 2017). Van Rijn et al. (2016) reported that re-employment programmes had a modest effect on quality of life but no effect on mental health or functioning in a meta-analysis including 16 articles on unemployed people with mental health disorders (Van Rijn, Carlier, Schuring, & Burdorf, 2016). The productive interventions to enhance the work ability and re-employment among unemployed people could be those combining therapeutic interventions and job seeking training (Hult et al., 2020). Earlier studies also

suggested multi-professional cooperation to arrange assessment, treatment, medical and occupational rehabilitation especially for long-term unemployed people (Niiranen, Hakulinen, Huuskonen, Jahkola, & Räsänen, 2011; Romppainen, Jähi, Saloniemi, & Virtanen, 2010; Vuokko et al., 2011; Wege & Angerer, 2013). In their meta-analysis Koopman et al. (2017) concluded that combining occupational and resilience skills training was a promising intervention to enhance the mental health of unemployed people (Koopman, Pieterse, Bohlmeijer, & Drossaert, 2017). More information based on research is sorely needed for efficient re-employment interventions.

6.3.3 Health care attendance among long-term unemployed people

Knowledge about the HC attendance of unemployed people was formerly based largely on quantitative research, mainly number of visits to GPs. However, the results of earlier studies have been somewhat contradictory. According to several studies utilisation of HC services increases during unemployment periods (Honkonen et al., 2007; Jin et al., 1995; Kraut et al., 2000). On the other hand, there are also studies which have shown that number of HC visits is decreased among unemployed people (Comino et al., 2003; Dryden et al., 2012; Kerätär & Karjalainen, 2010; Lappalainen et al., 2018; Virtanen, 1993; Virtanen et al., 2006). In addition, unmet care needs have been revealed to be frequent among unemployed people (Åhs & Westerling, 2006; Kerätär et al., 2016).

In the study by Reissner et al. (2014) only about one tenth of young unemployed people had sought help for their serious mental health disorders (Reissner et al., 2014). In the present study nearly one out of ten of the participants did not use any HC services during the three years prior to the EDIPE project and of depressed male as few as one out of eight. The proportion was nearly the same as in the study by Lappalainen et al. (2018) as they reported that 7% of long-term unemployed people did not visit GPs during the previous four years (Lappalainen et al., 2018). However, in the study by Lappalainen et al. (2018) the study population was a result of random sampling from the unemployment register of labour officials, whereas the population of the present study consisted of long-term unemployed people with health-related work disabilities.

Since the association with deteriorated health and unemployment has been demonstrated to increase through both health selection and social causation mechanisms the increased HC attendance would seem a logical deduction. At the

same time, decreased HC usage would also be a logical inference because financial strain connected to unemployment may prevent use of HC services. In addition, as mental health disorders are closely connected to unemployment, the symptoms of depression such as lack of initiative, introversion and social withdrawal or the socially unstable lifestyle connected to alcohol-related disorders may lead to non-use of HC services. According to a population-based study in Finland, HC attendance was low among subjects suffering from depression. The severity and duration of depressive symptoms and increased disabilities were positively associated with seeking care among depressive people. A considerable portion, nearly a half of them with most severe depression in the study did not receive mental treatment (Hämäläinen et al., 2004).

The findings of the study would explain the inconsistent findings in earlier studies showing both increased and decreased HC usage among unemployed people. Firstly, smooth HC attendance style or the frequent visits to HC may be defined as adequate usage of HC services since the increase in morbidity is associated with unemployment. Secondly, it seems that earlier, quantitative studies have acknowledged the scanty usage – marginalised – and increased – smooth – attendance styles while the present, qualitative study also detected faltering style. As the quantitative analyses in Study IV showed the increased risk of marginalised (scanty) and faltering attendance styles is associated with alcohol-related and depressive mental health disorders.

In their population-based systematic review of service usage for common mental disorders Roberts et al. (2018) indicated a positive association between increased HC usage and female gender, middle age, being single and advanced-level education (Roberts et al., 2018). In line with the findings by Roberts et al., according to the present study the smooth healthcare attendance style was associated with female gender and non-manual occupation. Furthermore, individuals over fifty years and living in a relationship were included in the group of smooth HC attendance style.

According to Study IV, the explanation for the discrepancy in earlier findings may be the qualitative differences in HC attendance. The risks for marginalised and faltering HC attendance styles were increased among long-term unemployed people suffering from either mood or alcohol-related disorders. Both marginalised and faltering style may refer to decreased or increased use of health services but either way the HC attendance is ill-suited and coincidental and may also underlie unmet care needs. Unmet care needs may increase the risk for drifting towards inappropriate usage of health services. Moreover, the outcome of the treatment may remain minimal.

Kerätär et al. (2016) discussed that distrust in medical services could be the crucial reason for refraining to seek medical help, especially for mental health disorders, among long-term unemployed people who were in work ability assessment (Kerätär et al., 2016). Staiger et al. (2017) also discovered in their study among unemployed people that discrimination, hopelessness, long unemployment spell and structures of HC constitute barriers to help seeking for mental health disorders. Instead, a good relationship with a GP or with employment officers acted as a facilitator for seeking care (Staiger et al., 2017). The faltering and marginalised HC attendance styles of health service usage might thus be both a cause and a consequence of the decreased detection of mental health disorders and the missing work ability assessment in HC mediated by distrust of medical care. Moreover, both diagnosing mental health disorders and assessment of work ability demand commitment, perseverance and patience from both doctor and patient.

An accurate and practical tool for the identification of marginalised or faltering HC attendance style could help HC personnel identify those people at risk for drifting towards work disabilities and long-term unemployment. Perhaps an artificial intelligence (AI) application for a patient management system could be developed based on these findings in order to screen those with faltering or marginalised style of HC attendance in earlier phase and to suggest suitable interventions to help them.

In earlier studies there are also proposals for occupational HC specialised in the problems of unemployed people (Romppainen et al., 2010; Wege & Angerer, 2013). The findings of the study are also in favour of a separate HC system focusing on the special needs of long-term unemployed people. A possible model for assessing such needs may be the 5A-model proposed by Harris et al. (2010), see 2.4.1.1 (Harris et al., 2010).

6.4 Strengths and limitations

Wilhelmsen et al. (1976) described the non-participant as "an unmarried, alcoholic pensioner with low income and a negative attitude towards medical care" in their study on the differences between participants and non-participants in a preventive trial of coronary heart disease forty-five years ago (Wilhelmsen, Ljungberg, Wedel, & Werkö, 1976). Wilhelmsen's definition could equally well describe the participants in the EDIPE examinations: Very long-term unemployed people with significant health-related work disabilities and low employability. Therefore, the data of this study is valuable. According to earlier studies, long-term unemployed people fall

easily into non-responders in population-based studies, including being hard to reach for surveys and representing drop-outs in longitudinal research (Berg et al., 2018; Kontto, Tolonen, & Salonen, 2019; Mannetje et al., 2011). This particular set of register data is indubitably the key strength of the study including those most 'severe' non-participation and drop-out cases. The register consisted mainly of older, less educated, disadvantaged, very long-term unemployed people with alcohol-related or mood disorders, the hard core of the unemployed.

Another strength is the research frame: The results describe an authentic situation in HC and employment service systems where workers operate without any particular instructions for the identification of mental health disorders. Also, the results of the study open up a new perspective on the mental health problems among long-term unemployed people. Despite the extensive knowledge of the association of poorer mental health with unemployment, the research on the identification of mental health problems among unemployed people seems to be scanty.

Above all, the study offers new information on the necessity of work ability assessment services for long-term unemployed people. In addition, results of the study present a new possible viewpoint and explanation for the previous, to some extent contradictory, findings on unemployed people's visits to HC. Instead of quantitatively, the differences in the health service attendance might be explained by the qualitative parameters.

There are also a few limitations in this study. The central limitation is the fact that the register from which the research data was extracted was compiled for clinical and not for research purposes. Consequently, the information was not consistent in quality and the missing information might also refer to missing recording as a result of missing clinical relevance both in HC and in the EDIPE records. Moreover, the data in the health records in the EDIPE project was not recorded as systematically as it would be if it had been compiled for scientific research. Also, the amount of missing information may be large. However, the data of the study represents the everyday life situation in HC, where clinical judgement must rely on inexact clinical information in the identification of various phenomena.

The scientific research on health and ability to work among unemployed people is mainly from the Nordic countries, Germany and Australia. Health inequalities between employed and unemployed people are significant in these countries but they can guarantee basic security for all citizens and absolute poverty, as defined globally, is practically non-existent. These countries also have the capacity to develop the services allocated to unemployed people. Long-term unemployment is a very challenging problem in those welfare states and the results of this study can be

generalised among long-term unemployed people with low employability and significant health-related work disabilities only in welfare societies like Finland.

Furthermore, this data was compiled from one city in the southern part of Finland so the outcome should be generalised with caution even at a national level. However, from a global perspective the regional differences in Finland are not so immense and nevertheless the findings of the studies by Kerätär et al. (2016) among long-term unemployed people from the rural area in the north-eastern part of Finland were largely consistent with the findings of the present study (Kerätär, 1995; Kerätär & Karjalainen, 2010; Kerätär et al., 2016).

Nevertheless, the findings of the present study cannot be generalised to all long-term unemployed people even in Finland. The participants in the EDIPE project were selected by employment counsellors and represent the long-term unemployed population with notable health-related work disabilities and low employability, the hard core of unemployed people.

Due to protracted research process the results illustrates the situation in Finnish HC in the first decade of the 2000s. For that reason, the findings should be approached with caution. However, examinations similar to those on the EDIPE project are still ongoing for long-term unemployed people municipally e.g. in Tampere. In other words, there is still a need for the further examination of ability to work and eligibility for DP among long-term unemployed people outside regular HC.

It should moreover be kept in mind that we do not know the exact grounds for DPs in this study. They are not specified in the decisions of the DPs. In Studies I and III we only know that the people who were granted a DP were diagnosed with alcohol-related (Study I) or mood disorder (Study III). How much the grounds related to mental health disorders affected the decision-making process of DP remains unknown. All in all, people should be treated holistically not dualistically in both HC and in pension insurance institutions.

In addition, the conclusions drawn from the results of the study should be confirmed in future with a prospective study design since certain conclusions were based on the study material: The conclusion that work ability assessment is lacking in HC despite the adequate identification of alcohol-related disorder is based on the structure of the population in the EDIPE project. Furthermore, the conclusion that unemployed people with depression but without significant physical ailments seem to be guided adequately to DP by the HC service system is founded on the sparse incidence of such cases in the EDIPE project.

7 CONCLUSIONS AND IMPLICATIONS FOR THE FUTURE

The studies and their conclusions are summarised in Table 6. According to this study it seems that alcohol problems entitling applicants to a DP are quite appropriately identified among unemployed people in HC. However, unemployed patients are not offered the appropriate work ability assessment or medical certificates to support applications for DPs even when they would be entitled to these. Employment services complemented the identification of alcohol-related problems among long-term unemployed people, but the benefit was minimal concerning screening out those eligible for DP.

The longer the unemployment spell was, the less likely was the identification of depression among unemployed people in HC to happen. However, there were indications of well-functioning identification concerning the work ability assessment among long-term unemployed people with depression. Nevertheless, the specific project focused on the work ability assessment identified quite a number of those long-term unemployed people with depression and concomitant physical disorders entitled to DP.

The outcome of the study also offers a possible explanation for the previous contradictory findings regarding the use of HC services among unemployed people. The differences in health service usage among long-term unemployed people with depression or alcohol-related disorder may be better described by qualitative, rather than quantitative issues; different styles in HC attendance rather than just the number of visits to HC.

What about the question presented in the title of this dissertation? Do the regular HC services meet the case for the identification of mental health disorders and decreased work ability among long-term unemployed people? As always, the answers to complex questions are multifaceted. On the one hand, there were signs of well-functioning HC services for the identification of alcohol-related and mood disorders among long-term unemployed people. On the other hand, the HC services seemed not to provide comprehensive work ability assessment and not to guide unemployed people to apply for DP even if they would have been entitled to do so.

Table 6. Summary of the studies and their conclusions. (HC=Health Care, DP=Disability Pension, MDD=Major Depressive Disorder)

	Study I	Study II	Study III	Study IV
Study questions	What difference is there in the identification of alcohol-related disorders between HC and employment services among long-term unemployed people with low employability and health impairment? Is there an association of HC or employment services identified alcohol-related disorders with granting DPs?	Is identification of depression in HC services associated with duration of unemployment among long-term unemployed people with a low employability and health impairment?	Is a project targeted at assessing the work ability of long-term unemployed people with low employability and health impairment able to detect undiagnosed depression? Is there any difference between HC identified and unidentified depression in the association with granting DPs?	What kind of HC attendance styles can be identified among long-term unemployed people with low employability and health impairment? Is there a greater risk for deviant HC attendance style among long-term unemployed people with alcohol-related or depressive disorders?
Methods				
Quantitative:	Pearson's chi-square and Fisher's exact tests Binomial logistic regression analysis	Pearson's chi-square and Fisher's exact tests Binomial logistic regression analysis	Pearson's chi-square test Binomial logistic regression analysis	Pearson's chi-square test Multinomial logistic regression analysis
Qualitative:				Typological analysis Categorization of HC attendance styles
Main findings	Employment services supplemented HC slightly with identification of unemployed people with alcohol-related disorders. HC identified adequately the cases of alcohol-related disorders, which were entitled to DP but the work ability assessment was missing	The longer the unemployment spell is the higher the risk is for unidentified depression in HC	The project targeted at work ability of long-term unemployed people identified new cases with MDD entitled to DP especially among those with concurrent physical disorders	Smooth, faltering and marginalised HC attendance styles were identified. In long-term unemployed people with alcohol-related and depressive disorders the risk for faltering or marginalised style was increased
Conclusions	"An occupational HC for unemployed people" included in work ability assessment should be considered	Among those with long unemployment periods, screening for depression should be considered	Due to the shortage in identification of depression, specific services are needed for the work ability assessment on long-term unemployed people	Qualitative rather than quantitative factors may explain the differences in HC attendance among long-term unemployed people. Screening according to HC attendance styles should be considered

7.1 Policy conclusions

The outcome of the study supports the earlier findings and empirical experience for organising HC services intended for those special problems connected with unemployment. In addition, work ability assessment for unemployed people including the assessment of rehabilitation facilities and eligibility for a DP should be

investigated. Contact and cooperation with those HC services intended for unemployed people should be easy-to-reach and flexible. The present occupational HC services should provide prolonged access to occupational health services equally for all those workers who are laid-off and will be unemployed. Some of the employees already receive such benefits. Also, for unemployed people a unique occupational HC service should be developed where their problems can be met individually.

Throughout the HC system it would be important to identify mental health disorders and possible needs for work ability assessment, also concerning unemployed patients. Nevertheless, overlap should be avoided so the services should focus on assessment and guiding forward to appropriate treatment and rehabilitative facilities. Maybe in the future the AI applications as a part for the digital patient management system could be developed for the identification of hazardous attendance styles.

In addition, multi-professional cooperation between HC, employment and other professionals responsible would be essential. Furthermore, training for all officials involved in the issues, including at least employment, social work and HC officials, would be desirable. The screening at least for depression and perhaps also alcohol-related disorders among unemployed people in employment and HC services should be seriously considered.

Special services should be allocated for young unemployed people. In particular, as they are called nowadays, NEET (Not in Employment, Education or Training) young people should be screened and contact with them maintained in order to guide them to rehabilitative measures or towards suitable studies.

Hopefully this dissertation makes a contribution to the struggle to prevent long-term unemployment and especially to enhancing earlier identification of those at increased risk for drifting towards work disabilities and long-term unemployment because of mental health disorders.

7.2 Implications for future studies

This study was based on the retrospective register material of a selected group of long-term unemployed people with health-related work disabilities and low employability from the area of one relatively big Finnish city. In future a prospective study frame at national level and the even more comprehensive usage of HC e-registers would open up new perspectives to address the mental health disorders and

HC attendance styles of long-term unemployed people. Moreover, it would be interesting to repeat the study focusing on the identification of mental health disorders in HC and in employment services among long-term unemployed people in Tampere nowadays, when examinations to determine eligibility for a DP among unemployed people have been established. Also, follow-up studies on long-term unemployed people whose DP applications were successful or unsuccessful could shed light on needs for HC and rehabilitative services among unemployed and retired, formerly unemployed people.

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PUBLICATIONS

PUBLICATION I

Identification of alcohol abuse and transition from long-term unemployment to disability pension

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ORIGINAL ARTICLE

Identification of alcohol abuse and transition from long-term unemployment to disability pension

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Abstract

Aims: The aim of the study was to reveal potential gaps and inconsistencies in the identification of alcohol abuse in health care and in employment services and to analyse the granting of disability pensions with respect to the alcohol abuse identification pattern. *Methods*: The material consisted of documentary information on 505 long-term unemployed subjects with low employability sent to the development project entitled 'Eligibility for a Disability Pension' in 2001–2006 in Finland. The dichotomous variables 'Alcohol abuse identified in employment services' and 'Alcohol abuse identified in health care' were cross-tabulated to obtain a four-class variable 'Alcohol abuse identification pattern'. Logistic regression analyses were conducted to ascertain the association of alcohol abuse identification pattern with the granting of disability pensions. *Results*: Alcohol abuse was detected by both health care and employment services in 47% of those identified as abusers (41% of examinees). Each service systems also identified cases that the other did not. When alcohol abuse was identified in health care only, the OR for a disability pension being granted was 2.8 (95% CI 1.5–5.2) compared with applicants without identified alcohol abuse. The result remained the same and statistically significant after adjusting for confounders. ***Conclusions*: Alcohol abuse identified in health care was positively associated with the granting of a disability pension. Closer co-operation between employment services and health care could help to identify those long-term unemployed individuals with impaired work ability in need of thorough medical examination.**

Key Words: *Alcohol abuse, disability pension, employment services, health care, identification, retirement, unemployment, work ability, work capacity evaluation*

Introduction

Unemployment is known to be related to impaired health [1] and risky alcohol consumption [2]. Risky drinking predisposes to unemployment and decreases the prospects of re-employment, especially when unemployment is prolonged [2–4]. Prolonged unemployment is connected to perceived deterioration of work capacity [5,6].

Work capacity evaluation demands an extension of the perspective beyond a purely medical point of view and is therefore often seen to fall outside the primary function of any health care system [7], particularly in respect of long-term unemployed people currently without work-related qualifications. Along with health care, another service system where the

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work capacity assessment is of importance but not the core task is employment services. The employment authorities also frequently face the question of work ability and employability [8]. Potential coexistent alcohol abuse makes the evaluation even more difficult. The identification of the alcohol abuse has proved challenging in both service systems [9,10].

The lack of work capacity assessment is not the only problem of unemployed individuals when the ability to work is substantially impaired. Furthermore, unemployment is connected to a higher likelihood of a disability pension (DP) application being rejected [11,12]. The reason may even lie in the legislation governing disability benefits, which appears to have been written with working people in mind. According to Finnish law a DP may be considered if a person is unable to work because of ill health, if the capacity for work has been continuously impaired by at least three-fifths for 1 year and cannot be restored by treatment or rehabilitation. Other work-related factors such as employability should also be taken into account. The medical certificate is a linchpin for decision-making in employee pension insurance companies or the social insurance institution granting DPs in Finland.

As unemployment is known to be associated with impaired health and reduced work capacity the Finnish Ministry of Labour arranged a nationwide development project for long-term unemployed entitled eligibility for a disability pension (EDIPE) [13]. The criteria for participating in the EDIPE project were having been unemployed for over 12 months and having health problems impairing employability. The purpose was to evaluate participants' capacity for work and to issue a medical certificate in support of a DP application if this seemed justified. The project also offered an opportunity for research concerning the work capacity of unemployed people.

One of the targets of the EDIPE was marginalized individuals with alcohol-related problems. We were interested in the identification of alcohol abuse and its importance in assessing the work capacity in this particular population. With the present study we aim to reveal potential gaps and inconsistencies in the identification of alcohol abuse in health care and in employment services and to analyse the granting of DPs with respect to different identification patterns.

Methods

The material of the present study was obtained from the records of EDIPE investigations conducted in the Finnish city of Tampere, population about 200,000, during the period 2001–2006. To form a corpus of research data we systematically collected the information from the records of the project of all those born between the 15th and 31st days of each month, 505 individuals in total. The final research data were drawn from four sources of the EDIPE project: (a) referrals by an employment counsellor; (b) medical record information requested from primary and specialized health care; (c) records of the baseline EDIPE examination: the self-administered questionnaire form of the basic characteristics and the psychologist's interview in EDIPE; (d) information on DPs applied for, granted or rejected on decisions about pension applications from employment pension insurance companies. The study was based entirely on documentary information and there was no personal contact with the subjects of the study. Because the study was based solely on documentary information, specific patient consent was not required. The research was authorized by the registrar of the EDIPE project and the ethics committee of Pirkanmaa Hospital District (ETL-code R06032).

The background information was collected from referrals made by employment counsellors and records of the baseline EDIPE examination. Age is shown in the tables as a four-class variable but was handled as a continuous variable in the analyses. Those widowed (n =15) were combined with the divorcees' group in the variable 'marital status'. Education was dichotomized to compulsory education only or more education. The information on learning difficulties at school was self-reported, as was criminality and the information about alcohol problems in the childhood family. The previous occupation was trichotomized to unskilled and skilled manual workers and non-manual workers, including entrepreneurs. The duration of unemployment refers to the continuous duration of the person being recorded as an unemployed jobseeker before joining the EDIPE. The time in years is shown in quartiles in Table I but was handled as a continuous variable in the analyses.

Alcohol abuse is defined in DSM-IV as a maladaptive pattern of alcohol consumption leading to clinically significant impairment or distress manifested, for example as a failure to fulfil major role obligations at work, school or home [14]. Information on the identification of alcohol abuse (yes or no) in employment services (ES) was extracted from the referrals of the employment counsellors. The information might be based on the examinee's own description, the employment counsellor's assessment resulting from the interview or a medical statement in the disability database of the employment authorities. In Finland the employment authorities may order a disorder-specific or more extensive medical

Table I. Association of background variables with alcohol abuse identification pattern and disability pension granted.

	Alcohol abuse identification pattern								Total	$p^{\dagger}$	Disability pension granted				Total	$p^{\dagger\dagger}$
	Not identified		Alcohol abuse identified in								No		Yes			
			Health care		Employment services		Both									
	N	%*	*N*	%**	*N*	%**	*N*	%**			*N*	%***	*N*	%***		
	299	59.2	75	36.4	35	17.0	96	46.6	505		175	38.6	278	61.4	453	
Gender									505	<.001					453	.479
Female	142	78.0	24	60.0	2	5.0	14	35.0	182		65	41.1	93	58.9	158	
Male	157	48.6	51	30.7	33	19.9	82	49.4	323		110	37.3	185	62.7	295	
Age									505	<.001					453	.365
23–39 yrs.	13	40.6	8	42.1	1	5.3	10	52.6	32		14	51.9	13	48.1	27	
40–49 yrs.	39	41.1	16	28.6	7	12.5	33	58.9	95		28	32.9	57	67.1	85	
50–59 yrs.	218	64.3	47	38.8	24	19.8	50	41.3	339		120	39.1	187	60.9	307	
60–64 yrs.	29	74.4	4	40.0	3	30.0	3	30.0	39		13	38.2	21	61.8	34	
Marital status									504	<.001					453	.421
Married/cohabiting	101	79.5	15	57.7	4	15.4	7	26.9	127		49	43.0	65	57.0	114	
Unmarried	70	50.0	25	35.7	12	17.1	33	47.1	140		43	34.7	81	65.3	124	
Divorcee	128	54.0	34	31.2	19	17.4	56	51.4	237		83	38.6	32	61.4	215	
Basic education									433	.581					390	.687
Compulsory education	208	58.4	49	33.1	30	20.3	69	46.6	356		130	40.5	194	60.4	321	
More education	48	62.3	10	34.5	3	10.3	16	55.2	77		26	37.7	84	63.6	69	
Learning difficulties at school									505	.010					453	.596
No	230	63.4	48	36.1	26	19.5	59	44.4	363		127	39.6	194	60.4	321	
Yes	69	48.6	27	19.0	9	6.3	37	26.1	142		48	36.4	84	63.6	132	
Occupation									492	<.001					441	.165
Non-manual worker	62	75.6	8	40.0	3	15.0	9	45.0	82		31	44.9	38	55.1	69	
Skilled manual worker	196	61.8	44	36.3	23	19.0	54	44.6	317		114	39.7	173	60.3	287	
Unskilled manual worker	32	34.4	23	37.7	8	13.1	30	49.2	93		26	30.6	59	69.4	85	
Duration of unemployment									505	<.001					453	.210
1–6 yrs	83	72.8	14	45.2	2	6.5	15	48.4	114		45	45.5	54	54.5	99	
7–10 yrs	78	67.8	11	29.7	6	16.2	20	54.1	115		38	37.6	63	62.4	101	
11–13 yrs	76	54.3	22	34.4	17	26.6	25	39.1	140		52	40.6	76	59.4	128	
14–35 yrs	62	45.6	28	37.8	10	13.5	36	48.6	136		40	32.0	85	68.0	125	
Criminality									505	<.001					453	.091
No	279	65.2	58	38.9	24	16.1	67	45.0	428		153	40.5	225	59.5	378	
Yes	20	26.0	17	29.2	11	19.3	29	50.9	77		22	29.3	53	70.7	75	
Alcohol problems in the childhood family									505	<.001					453	*.033*
No	250	64.8	55	40.4	22	16.1	59	43.4	386		142	41.5	200	58.5	342	
Yes	49	41.2	20	28.6	13	18.6	37	52.9	119		33	29.7	78	70.3	111	

*Percentage of total; **percentage of identified alcohol abuse; ***percentage of disability pensions.
$^{\dagger}p$ <0.05 illustrates statistically significant difference between classes of the alcohol abuse identification pattern related to background variables.
$^{\dagger\dagger}p$ <0.05 illustrates statistically significant difference between disability pension granted or not related to background variables.

examination if an employee demonstrates some incapacities concerning his/her work, and the employment authorities are allowed to register those diagnoses in a specific database. The variable concerning the identification of alcohol abuse (yes or no) in health care (HC) was based on diagnoses of alcohol use disorders (F10* according to ICD-10) from the subjects' medical records. The dichotomous variables 'Alcohol abuse identified in ES' and 'Alcohol abuse identified in HC' were cross-tabulated to obtain a four-class variable: (1) no identified/recorded alcohol abuse; (2) health care identified; alcohol abuse in health care records only; (3) employment services identified; alcohol abuse in the employment counsellors' referrals only; (4) health care and employment services identified; alcohol abuse identified/recorded in both services. This 'Alcohol abuse identification pattern' was the main explanatory variable. The outcome of the study was whether a DP was indeed granted. The groups of those whose applications were rejected and of those who did not apply at all were combined, as the members on these groups could be deemed fit for work.

For comparison of the categorical values Pearson's chi-square and Fisher's exact tests were used. Bivariate comparisons were made between background variables (gender, age, marital status, occupation, education, learning difficulties at school, duration of unemployment, criminality and alcohol problems in the childhood family) and the alcohol abuse identification pattern as well as between background variables and DPs granted (Table I). The association of the alcohol abuse identification pattern with DPs granted was analysed by binary logistic regression analysis, where DPs granted was the dependent variable and the alcohol abuse identification pattern the explanatory variable with the group 'no identified alcohol abuse' as a reference group (Table II). The association was described by odds ratios (OR) and corresponding 95% confidence intervals (CI), first without adjustments (Model 1), next adjusting for gender, age, marital status and occupation (Model 2), then adjusting for 'alcohol problems in the childhood family', which turned out to be the only background variable independently associated with DPs granted (Model 3), and finally adjusting for all the background variables independently associated with the alcohol abuse identification pattern or DPs granted: gender, age, marital status, learning difficulties at school, occupation, duration of unemployment, criminality and alcohol problems in the childhood family (Model 4). The statistical analyses were carried out using SPSS/Win software (version 19.0, SPSS Inc., Chicago, IL, USA).

Table II. Association of alcohol abuse identification pattern (no identified alcohol abuse as a reference group) with a disability pension granted adjusting for several multivariate models.

Identification pattern of alcohol abuse	Disability pension granted					Model 1[a]		Model 2[b]		Model 3[c]		Model 4[d]	
	No		Yes		*p*	OR (95% CI)	*p*	OR (95% CI)	*p*	OR (95% CI)	*p*	OR (95% CI)	*p*
	N	%	*N*	%									
	175	38.6	278	61.4									
Not identified	119	45.4	143	54.6	.002	1		1		1		1	
Identified in health care only	16	22.9	54	77.1		2.8(1.5,5.2)	.001	3.0(1.6,5.8)	.001	2.7(1.5,5.0)	.001	2.9(1.5,5.6)	.001
Identified in employment services only	9	26.5	25	73.5		2.3(1.0,5.1)	.040	2.3(1.0,5.4)	.052	2.1(1.0,4.8)	.066	1.9(0.8,4.6)	.134
Identified in health care and employment services	31	35.6	56	64.4		1.5(0.9,2.5)	.111	1.7(1.0,3.0)	.062	1.4(0.8,2.3)	.230	1.5(0.8,2.7)	.166

[a]Model 1. Crude model.
[b]Model 2. Adjusted for socio-demographic background variables: gender, age as a continuous variable, marital status and occupation.
[c]Model 3. Adjusted for the variable with the independent association with disability pension granted: Alcohol problems in the childhood family.
[d]Model 4. Adjusted for the variables with the independent association with alcohol abuse identification pattern or disability pension granted: gender, age as a continuous variable, marital status, occupation, learning difficulties at school, duration of unemployment as a continuous variable, criminality and alcohol problems in the childhood family.

Results

Men accounted for 64% of the examinees. The mean age was 52 (SD 6.8) years, range 23–64 years. Of all examinees 75% were single. The proportion of subjects with more than basic education was 15% (n=77). The information on education was not documented in the EDIPE records for 14% of the subjects. Learning difficulties at school were reported by 28%. Skilled manual workers amounted to 63% (n=317). Average duration of unemployment was 11 years (SD 5.6). Criminal history was reported by 15% (n=77) of the subjects. Examinees reporting alcohol problems in the childhood family amounted to 24%.

Alcohol abuse was identified in 41% (n=206) of the examinees. For 47% (n=96) of them alcohol abuse was identified both in health care and in the employment services. Of those in whom alcohol abuse was identified 36% (n= 75) were so identified in health care only and 17% (n=35) in employment services only. The group 'no identified alcohol abuse' (59%, n=299) might include both those with no alcohol abuse and those with unidentified/unrecorded alcohol abuse. The facts cannot be confirmed in this study design. The background variables and their associations with the alcohol abuse identification pattern and DPs granted are shown in Table I. Of the background variables only alcohol problems in the childhood family showed a statistically significant association with the granting of DPs (p=0.033).

Those in whom alcohol abuse was identified were more often men, under 50 years old, single, unskilled manual workers, with an unemployment period over 10 years, learning difficulties at school, criminal background and alcohol problems in the childhood family. Among those in whom alcohol abuse was identified in health care only there were more females, married and subjects under 40 years old. They had more frequently secondary education, learning difficulties at school, shorter unemployment period, less criminality and fewer alcohol problems in the childhood family than those whose alcohol abuse was identified in employment services only.

For 12% of the cases (n=58) work capacity turned out to be relatively good and no DP was applied for. Of those applying (n=431), DPs were granted to 65% (n=278) and rejected for 27% (n=117). Information on the decision was missing in 8% (n=36). The EDIPE process was discontinued in 3% (n=16). Based on these data, a dichotomous DP variable (granted vs. not applied for or rejected DP) was defined.

Table II shows the association between alcohol abuse identification pattern and a DP being granted. Of those granted a DP, alcohol abuse had been identified in employment services, in health care or in both in 49%, in health care only in 19% and in employment services only in 9%. In crude analysis, (Model 1) when alcohol abuse was found only in the health care records, the OR for a DP being granted was 2.8 (CI 95% 1.5, 5.2) compared with those without identified alcohol abuse. After adjusting for socio-demographic variables (Model 2) the OR increased to 3.0 (CI 95% 1.6, 5.8). When adjusted for the variable with an independent association of a DP being granted (Model 3) the OR was 2.7 (CI 95% 1.5, 5.0). The OR was 2.9 (CI 95% 1.5, 5.6) and remained statistically significant after adjusting for background variables independently associated with the alcohol abuse identification pattern or with DPs granted (Model 4). If alcohol abuse was identified in employment services only, the OR for a DP being granted was 2.3 (CI 95% 1.0, 5.1) in the crude model. In Models 2–4 the OR remained essentially the same but the difference was not statistically significant. When alcohol abuse was identified in both health care and in employment services, there were no statistically significant differences in the granting of DPs.

Discussion

This study described the relevance of the alcohol abuse identification pattern among long-term unemployed subjects with low employability referred for evaluation of their eligibility for a DP. Even if health care and employment services concurred on an individual having alcohol abuse in 47% of the subjects, each service system also identified cases that the other did not. When alcohol abuse was identified in health care only, the OR for the DP being granted was 2.8 (CI 95% 1.5, 5.2) compared with those without identified alcohol abuse (Table II, Model 1). Adjusting for the socio-demographic background variables or possible confounders connected independently to the alcohol abuse identification pattern or DPs granted (Table II, Models 2–4) had only a minor effect on the ORs. A possible explanation may be the highly selected study population. Among those with alcohol abuse identified in employment services only, the odds for a DP being granted were not as clear and not statistically significant after adjusting for potential confounding variables as among those whose alcohol abuse was detected in health care only.

The disparity in the identification of alcohol abuse may be due to the different tasks and focuses of the respective services. Research on the identification of alcohol abuse in employment services is scarce. According to earlier research, employment specialists have been found to have difficulties in identifying

substance abuse and training was needed for employment counsellors to improve their ability to identify substance abuse among their clientele [10,15]. Similar problems have been found to hinder the identification of alcohol-related problems in health care [9]. The alcohol problems identified previously have been associated with younger age, higher education and male gender [16,17]. In this study, among those whose alcohol abuse was identified in health care only there were more women than among those whose alcohol abuse was identified in employment services only. Health care also seemed to be more sensitive in identifying alcohol abuse among younger individuals, those unemployed under 10 years and those without alcohol problems in the childhood family.

Contrary to findings in earlier population-based studies, there was no negative association between previous identification of alcohol abuse and granting of DPs. Unemployment in itself, and alcohol- or drug-related diagnoses and marginalization have previously found to increase the risk for the DP application being rejected [11,12]. Also, individuals with serious alcohol-related problems ended up with disability pensions less frequently than did individuals with other serious health problems [19].

The result of this study may also reflect an identification of the social consequences of alcohol abuse by employment services in the earlier phase of alcohol-related problems before any serious physical or mental complications develop due to alcohol abuse. In order to be considered as a valid reason for granting a DP, a diagnosis of alcohol dependence necessitates coexisting severe physical or mental complications or alcohol dependence with serious and continuous social exclusion [18]. With this study frame, we still do not know on which diagnoses the decisions for granting DPs were based.

The background variables of the study were connected to alcohol problems or granting of DPs reported in earlier studies: severe excessive drinking has been connected to repeated job losses, prolonged unemployment, broken relationships and living alone [20]. Learning disabilities at school and an increased risk for binge drinking have been reported [21]. An association has also been found between alcohol problems and self-reported criminal behaviour [22]. Parents' alcohol problems have been associated with disability retirement in adult offspring [23]. Earlier studies have found connections between heavy alcohol consumption or hazardous drinking and DP but opposite results have also been reported [24–26]. Ageing, low occupational class and unemployment have also been connected to an elevated risk for a DP [27]. However, when we carried out the analyses stratifying by median age of 54 years, there were no statistically significant differences in the younger age group between alcohol abuse identification pattern and DPs granted even if the ORs remained somewhat similar. The difference remained statistically significant and the ORs increased in the older age group among those whose alcohol abuse was identified in health care only (results not shown). A low level of education has been connected to a DP in population-based studies [27,28]. Among the long-term unemployed the connection between education and work capacity has not been so obvious [5]. Age, prolonged unemployment, and economic difficulties have been found to be negatively associated with working capacity among the unemployed [5,6].

To the best of our knowledge there are no earlier studies on the difference in the identification of alcohol abuse among the long-term unemployed between health care and employment services or on the connection of identified alcohol abuse with the granting of a DP. The particular set of register data utilized in this study enabled the novel study design and complemented information about subjects who are often over-represented among non-responders to population-based surveys and drop-outs from longitudinal studies [29,30].

A few limitations may complicate the interpretation of the results: as the material was originally collected for a development project, not all the background information was available for every subject. Some of the DP decisions were also missing. Nor could we obtain the information on alcohol abuse with exactly the same degree of precision from the employment services and health care. The diagnoses of ICD-10 class F10* including alcohol abuse, alcohol dependence or other alcohol-related problems were drawn from health care records. In the referrals by the employment authorities, descriptions of alcohol abuse were less specific and we could not access real-time information about the diagnoses in the disability register by the employment authorities. Thus the difference between health care and employment services in identifying alcohol abuse may partly be explained by differences in recording practices. Nor can our findings be generalized to all long-term unemployed people, but only those hard-core unemployed individuals with health-related incapacities and low employability.

According to the present study the granting of DPs seems to be connected to alcohol abuse identification patterns among the very long-term unemployed with health-related incapacities and low employability. Identified alcohol abuse in itself appears not to be an obstacle on moving to a DP. Alcohol abuse of long-term unemployed individuals

is also identified by the employment services even if their competence to identify those eligible for a DP was found to be less accurate. In further studies, survey methods could add to what is already known about the study topic. Closer co-operation between health care and employment services could enhance the identification of alcohol abuse affecting work ability, offer the appropriate work capacity evaluation and provide opportunities for helping the long-term unemployed by tertiary prevention measures.

Conflict of interest

None declared.

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PUBLICATION II

Identification of major depressive disorder among the long-term unemployed

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ORIGINAL PAPER

Identification of major depressive disorder among the long-term unemployed

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Abstract
Purpose Depression is a common mental health disorder among the unemployed, but research on identifying their depression in health care is scarce. The present study aimed to explore the identification of major depressive disorder (MDD) in health care on long-term unemployed and find out if the duration of unemployment correlates with the risk for unidentified MDD.
Methods The study sample consisted the patient files of long-term unemployed people (duration of unemployment 1–35 years, median 11 years), who in a screening project diagnosed with MDD ($n=243$). The MDD diagnosis was found in the health care records of 101. Binomial logistic regression models were used to explore the effect of the duration of unemployment, as a discrete variable, to the identification of MDD in health care.
Results MDD was appropriately identified in health care for 42% ($n=101$) of the participants with MDD. The odds ratio for unidentified MDD in health care was 1.060 (95% confidence interval 1.011; 1.111, $p=0.016$) per unemployment year. When unemployment had continued, for example, for five years the odds ratio for having unidentified MDD was 1.336. The association remained significant throughout adjustments for the set of background factors (gender, age, occupational status, marital status, homelessness, criminal record, suicide attempts, number of health care visits).
Conclusions This study among depressed long-term unemployed people indicates that the longer the unemployment period has lasted, the more commonly these people suffer from unidentified MDD. Health services should be developed with respect to sensitivity to detect signs of depression among the long-term unemployed.

Keywords Depression · Health care · Identification · Major depressive disorder · Unemployment

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Introduction

Major depressive disorder (MDD) causes significant human suffering and is the second leading cause of years lived with disabilities globally [1]. According to a review article the 12-month prevalence of MDD is 6.9% [2]. Unipolar depression also is a leading contributor to a burden of disease measured by disability adjusted life years: The number of lost years of healthy life has been calculated as 4,320,400 in Europe [3, 4]. According to earlier studies around 10% of primary health care patients [5, 6] and 50% of specialized mental health care patients [5] suffer from clinical

depression. The financial burden of depression is also notable. The total costs of MDD in the USA have been estimated at over $210.5 billion in 2010 [7]. One potentially affective means of combatting the challenges posed by MDD would be to focus the health service resources for the risk groups.

One of the most noteworthy risk groups for MDD is unemployed people. A connection between unemployment and deteriorated mental health, especially depression, has been demonstrated in several studies [8–11]. In particular, prolonged unemployment incurs a risk for depression and vice versa: poor mental health may negatively affect re-employment [12, 13].

The identification of depression is a key objective in improving depression remission rates. In primary care settings the depression identification rate has varied between 47 and 84% [14, 15]. As unemployment and depression commonly co-occur, paying attention especially to the identification of depression among unemployed people could substantially enhance the rate of identified depression as a whole. The identification of depression may, however, be more complicated among the unemployed because there are no job-related requirements regarding mental health and the need for seeking care may also be reduced.

The reasons for inadequate identification of depression among the unemployed largely lie in their particular patterns of utilization of health services. Visits to health care professionals have been demonstrated to decrease during unemployment but the results are not entirely conclusive [16–19]. At least some activity and initiative on the part of the individual concerned would have been demanded to seek professional help for mental problems but these properties are often deficient in people with mental disorders. It is known that the unemployed do not seek professional help for their health problems as actively as do employees, or even if they seek help from health care, their mental health problems and need for treatment go largely unidentified [20, 21]. In sum, there is substantial evidence of a connection between depression and unemployment. However, research on the extent to which depression among the unemployed is identified in health care is scarce.

The aim of this study was to explore the identification of depression among the long-term unemployed in health care focusing especially on the duration of unemployment. We expected to find that the risk of suffering from unidentified depression increases along with the lengthening of the unemployment spell.

Materials and methods

The study sample consisted of long-term unemployed people involved in the 'Eligibility for a Disability Pension' project (EDIPE), initiated by the Ministry of Labour in Finland [22]. According to the above demonstrated association between deterioration of health with prolonged unemployment, the idea of the EDIPE—project was to identify from among the long-term unemployed those who might be permanently unable to work, to offer them a thorough multi-professional, medical examination and, in cases where the criteria for the disability pension were fulfilled, to provide a certificate to support a disability pension application. The EDIPE—process was initiated by the employment authorities, who assessed the participant's eligibility on the basis of the records of health problems, limitations in working ability and duration of the unemployment period, which should be at least 1 year.

For this research the data was derived from the documents of the case history register of the EDIPE-project. The research register included 505 participants of the EDIPE-evaluation in Tampere, Finland for the years 2001–2006. The documents consisted of medical records requested from primary and specialized health care and the medical examinations of the EDIPE -project. The research register is presented in more detail in our previous publication [23].

The psychiatric assessments in the EDIPE project were made by experienced psychiatrists. The diagnoses of MDD (F32.*) or recurrent MDD (F33.*) were set in clinical examination by adhering to the criteria of ICD-10 [24]. Before the clinical examination, the psychiatrist acquainted him/herself thoroughly with the health records acquired from primary and specialized health care as well as with the health records produced in the multi-professional assessment conducted during the EDIPE -project. A total of 243 participants (48% of the sample of 505 long-term unemployed) received a MDD-diagnosis. They comprised the sample of the present study. This sample was classified into those who, according to the documents acquired from health care, had been diagnosed as suffering from MDD prior to entering into EDIPE -project into 'the identified' ($n = 101$, 42%) and those whose depression had not been diagnosed 'the unidentified' ($n = 142$, 58%). This dichotomous variable was the outcome of the study.

The explanatory factor was duration of unemployment, which was handled as a discrete variable in the multivariate analyses and presented in quartiles (1–6, 7–10, 11–13 and 14–35 years) in bivariate analyses. The duration of unemployment refers to the continuous duration of the person being recorded in the employment office as an unemployed jobseeker before entering in the EDIPE project. The recorded unemployment period included also participation in active labour market policy measures, such as various courses or spells of subsidized re-employment.

Background variables were as follows: Age was set as a discrete variable in the multivariate analyses and categorized into four-classes in the bivariate analyses. Marital status was dichotomized to single (including unmarried, divorced

and widowed) and married/cohabiting. Occupational status was trichotomized to unskilled and skilled manual workers and non-manual workers including entrepreneurs. The information on homelessness was self-reported, as was having a criminal record. The information on suicide attempts (yes or no) was gathered from the records of primary and specialized health care, as was the number visits to physicians during the preceding 3 years. The number of visits was handled as a discrete variable in multivariate analyses and categorized into four in the bivariate analyses.

After describing the associations between background factors and 'Identification of MDD', binomial logistic regression analyses were conducted with 'Identification of MDD' as the dependent variable and duration of unemployment, as a discrete variable, as the main explanatory variable. The analysis was adjusted separately for sociodemographic background variables, for variables with statistically significant difference for the identification of MDD in bivariate analyses, for variables associated to social exclusion and for variables associated with the using health care services. Finally, the whole set of variables was introduced into the regression model.

Pearson's Chi-square and Fisher's exact tests were used in the comparison of the categorical variables in bivariate analyses. In the regression models the association of the identification of MDD in health care with the duration of unemployment was described by odds ratios (OR) per 1 year of unemployment and corresponding 95% confidence intervals (CI). The statistical significance was determined with p value < 0.05. Statistical analyses were conducted by SPSS/Win software version 23, IBM^{R} SPSS^{R} statistics.

Results

Of the studied group of long-term unemployed diagnosed as depressed on the EDIPE-project, men accounted for 59% ($n = 144$). The mean age was 52 years (SD 6.3, range 29–64 years). Single were 73% ($n = 178$) and manual workers, skilled or unskilled, amounted for 82% ($n = 193$). The unemployment had lasted for a very long time, on average 10 years (median 11 years, SD 5.7) and at maximum 35 years. Suicide attempts were found in the records of 20% ($n = 49$) of the participants. On an average 11 visits in health care were observed in the 3 years prior to the entry into the EDIPE-project (median 8, SD 10.7, range 0–89).

Of those 243 with diagnosed MDD, 8.6% suffered mild, 54.7% moderate, 21.4% severe, 0.8% psychotic depression and on 14.4% the severity of MDD remained unspecified. Recurrent episode of depression was discovered on 10.7% and psychiatric comorbidity occurred on 79% of participants. The most prevalent comorbidity, alcohol use disorder (AUD, containing ICD-codes F10.1 alcohol abuse and F10.2 alcohol dependence), was diagnosed on EDIPE-project on 49%, personality disorder (F6*, according to ICD-10) on 38% and anxiety disorder (F4*, according to ICD-10) on 25% of the participants.

Descriptive statistics of the study population according to the identification of MDD are presented in Table 1. Non-identification was associated with male gender ($p = 0.047$),

Table 1 Association of the background variables with the identification of major depressive disorder (MDD) in health care (HC)

	Identification of MDD				*p*
	MDD identified in HC		MDD unidentified in HC		
	N	%	*N*	%	
	101	41.6	142	58.4	
Gender					**0.047**
Female	49	48.5	50	35.2	
Male	52	51.5	92	64.8	
Age					0.429
23–39 years	7	6.9	5	3.5	
40–49 years	21	20.8	30	21.1	
50–59 years	69	68.3	96	67.6	
60–64 years	4	4.0	11	7.7	
Marital status					0.244
Single	70	69.3	108	76.1	
Married/cohabiting	31	30.7	34	23.9	
Occupational status					0.607
Non-manual worker	19	19.2	24	17.5	
Skilled manual worker	63	63.6	95	69.3	
Unskilled manual worker	17	17.2	18	13.1	
Homelessness					**0.027**
No	98	97.0	126	88.7	
Yes	3	3.0	16	11.3	
Criminal record					0.862
No	85	84.2	117	82.4	
Yes	16	15.8	25	17.6	
Duration of unemployment (in quartiles)					**0.003**
1–6 years	35	34.7	29	20.4	
7–10 years	25	24.8	31	21.8	
11–13 years	14	13.9	48	33.8	
14–35 years	27	26.7	34	23.9	
Previous suicide attempt					**0.006**
No	72	71.3	122	85.9	
Yes	29	28.7	20	14.1	
Use of health services (visits in 3 years)					**< 0.001**
0	5	5.0	31	21.8	
1–6	20	19.8	42	29.6	
7–13	29	28.7	43	30.3	
14–89	47	46.5	26	18.3	

Bold values indicate statistically significant ($p < 0.05$)

homelessness ($p=0.027$) and longer duration of unemployment ($p=0.009$). Previous suicide attempts ($p=0.006$) and higher number of visits in health care ($p<0.001$) were positively associated with the identification of MDD. Mean duration of unemployment was 11 years (SD 5.5) and 9 years (SD 5.9) among those with unidentified and identified MDD ($p=0.014$), respectively. In addition, the identification of MDD in health care among homeless persons tended to remain lower than among those with a permanent residence (16 vs. 44%, $p=0.027$). Furthermore, MDD was identified more commonly among subjects with suicide attempts (59 vs. 37%, $p=0.006$). Of the whole study population 15% had not visited health care at all in the 3 years prior to participating in the EDIPE-project, 6% of women and 21% of men, and of those whose depression remained unidentified 22% had not used any health care services. The identification of MDD was more frequent when there had been at least 14 visits to health care during the last 3 years before the EDIPE -project compared to 1–6 or 7–13 visits, 64 vs. 32% and 40%, respectively.

The health records revealed the information of ongoing and/or past mental health care as follows: of the study group, 59% were prescribed antidepressive medicine. The regular psychiatric treatment relationship in specialized mental health clinic had carried out on 14%, but intensive psychotherapy got only 3%. Psychiatric hospitalizations had 15% of the study group. A treatment contact in the outpatient substance abuse services had met with 32% and in inpatient detoxification care 28%.

In the binomial regression analysis (Table 2) the OR for unidentified MDD was 1.060 ($p=0.016$) per 1 year of unemployment. This means a higher risk for unidentified MDD among those with longer duration of unemployment. If unemployment had continued 5 years the OR for unidentified MDD increased to 1.336 and after 10 years of unemployment to 1.786. The binomial regression analyses were conducted to exclude potential confounders among factors associated to identification or non-identification of MDD in bivariate analyses. The result remained at the same level throughout adjustments: In Model 2 sociodemographic background variables (OR 1.056, $p=0.028$), in Model 3 for variables with statistically significant difference in the bivariate analyses from the identification of MDD (OR 1.057, $p=0.033$), in Model 4 for variables associated with social exclusion (OR 1.070, $p=0.009$), in Model 5 for variables associated with the use of health services (OR 1.062, $p=0.022$) and in Model 6 the full model for all the background variables in Models from 2 to 4 (OR 1.073, $p=0.012$).

Discussion

The study revealed that the diagnosis of MDD can be found in the documents of the health care in less than half of the long-term unemployed suffering from this disorder. Moreover, in the line with our expectations, the risk for

Table 2 Association of the duration of unemployment, as discrete variable, with unidentified major depressive disorder (MDD) in health care (HC) in crude model and after adjusting for several multivariate models described by odds ratios (OR) per 1 year of unemployment and 95% confidence intervals (CI)

	OR/1 year of unemployment	CI	*p*
Model 1	1.060	1.011;1.111	**0.016**
Crude model			
Model 2	1.056	1.006;1.108	**0.028**
Adjusted for sociodemographic characteristics: Age, gender, marital status			
Model 3	1.057	1.004;1.113	**0.033**
Adjusted for variables with statistically significant difference from identification of MDD in bivariate analyses: gender, homelessness, suicide attempts, number of visits to HC in last 3 years			
Model 4	1.070	1.017;1.126	**0.009**
Adjusted for variables related to social exclusion: gender, marital status, occupational status, homelessness, criminal record			
Model 5	1.062	1.009;1.118	**0.022**
Adjusted for variables related to use of HC: Number of visits to HC, age, gender, suicide attempts			
Model 6	1.073	1.016;1.135	**0.012**
Full model. Adjusted for: age, gender, marital status, occupational status, homelessness, criminal record, suicide attempts, number of visits to HC in last 3 years			

Bold values indicate statistically significant ($p < 0.05$)

unrecorded depression increased along with the duration of the unemployment.

The reason of missing records was naturally evident in the case of those 36 (15%) individuals who had not used health care services during the preceding 3 years. The rest had 1–89 physician visits, and among these a record of depression was found in 46%. This figure nearly falls within the wide range from 47 to 84% found in earlier studies for the identification of depression among primary health care patients by general practitioners (GP) [14, 15]. Moreover, there is evidence that unemployment may be one background factor increasing the detection of depression by GPs [3, 25]. We also found that the number of visits was positively associated with a recording of depression, indicating in line with earlier research [26] that a proper diagnostics of depression requires multiple appointments.

The findings of this study need to be assessed in the light of the nature of the data. The study material was quite comprehensive, including not only primary health care documents but also documents from outpatient and inpatient care in specialized health services, including psychiatry, rehabilitation institutions and even the prison administration. Thus the identification rate of 42% is quite low. On the other hand, the use of the health services comprises most commonly different kinds of acute or subacute appointments, so it is conceivable that in the context of such an encounter it is not even relevant to raise and tackle potential mental health issues. This also applies to visits to specialized secondary health care. Secondly, the clinicians may have considered a patient's depressiveness and unemployment as a kind of complex that does not serve a starting point for diagnostic and therapeutic measures and have classified this more as a social problem. At the other extreme of the identification of depression there are those patients who had attempted suicide. As suicidality is closely connected to MDD as one serious symptom or complication of the syndrome, a previous suicide attempt increased the likelihood of MDD being diagnosed in health care. The result may refer to only observing and diagnosing MDD after it had become even more serious and complicated accompanied by suicidal intentions. There is evidence that recognition of depression is directly related to its severity [26]. The proportion of suicide attempts in the study population was 20%, which is relatively high when compared to previous Finnish primary care studies on patients with MDD (10–17%) [27, 28].

We applied fairly strict criteria, requiring an explicit MDD diagnosis for a record to be valid and considered identification of MDD in the EDIPE-project as 'the gold standard'. These diagnoses were not standardized in the sense of a uniform procedure. However, the diagnoses were based on individual clinical interviews according to the ICD-10 criteria and extensive preliminary knowledge acquired by the experienced psychiatrists engaged on the EDIPE project. In the other words, the 'standard' was EDIPE's overall interest in assessing the extent to which depression, alone or in combination with other psychiatric or somatic diseases, contributed to a patient's impaired work ability both present and future. This EDIPE scope and associated interrater incompatibility [29] may have contributed to but cannot be the major explanation for the huge discrepancy between health care recorded and EDIPE diagnosed prevalence of MDD. A more substantial, though not exhaustive, explanation may be that, as indicated in some earlier studies, recording of the diagnosis may be deficient in spite of appropriate recognition of MDD in health care [30, 31]. Moreover, in some cases the health care records may miss the diagnosis because MDD has appeared shortly before the entry or even during the EDIPE -process. The knowledge of functional capacity would complete the relevance of identification of depression, but, as a limitation, the information was not systematically recorded.

We argue that the long-term unemployed are marginalized from appropriate identification of MDD in health care. The argument is supported by the finding that the probability of unrecorded MDD was positively associated with the duration of unemployment. Moreover, this marginalization from health services seems to be a phenomenon of its own, as the association remained significant when a wide range of background variables, including other indicators of marginalization, were controlled for. Our findings add to and specify the body of knowledge showing use of health services as decreased and the unmet care needs as increased among the unemployed [16, 18, 21]. In particular, there are unmet needs for psychiatric care [20], for instance according to an Australian study, the unemployed are twice as likely to suffer from affective symptoms as the employed but they are less likely to consult a GP [17].

Reduced help seeking during unemployment can be explained as a low social pressure for recovery, which, furthermore, can be understood as reflecting lowered level of bonding social capital and consequent reduction in the use of health services [32]. But the reasons for scarce use of health care services and unmet care needs may also lie in the structures of health care. This viewpoint has a particular relevance in Finland: There is a widespread occupational health care system providing easily accessible and free of charge services exclusively for the employed population, whereas the services for the unemployed are limited to universal primary health care [33]. The findings of this study also give reasons to consider ways to improve the coverage and the content of health services among the unemployed.

There is some evidence that unemployment increases the risk for depression particularly among men [34]. Among older long-term unemployed men who were guided to a psychosocial coaching center, more than three quarters were found to suffer from mood disorders and

28% from depression or double depression [35]. However, in line with earlier research [36–38], women (54%) got a diagnosis of MDD in the EDIPE -examinations more commonly than men (45%). Among those with the diagnosis, women's MDD had been recorded in health care more often than men's (50 vs. 36%); this is likely due to gender differences in the threshold to seek help for mental problems [39, 40].

The EDIPE-project was based on the assumption that among the hardest-core long-term unemployed there are many people who have chronic illnesses, who have been marginalized even from health services and whose work ability has not been appropriately assessed. The findings support this assumption: The project was successful in detecting a lot of MDD that had not been identified prior to entry into the EDIPE-examinations. The diagnosis contributed, solely or mostly in combination with other diagnoses, to the decision to apply for a disability pension. Future disability retirement or treatment were not in the scope of this study, which aimed to reveal the features of marginalization with depression as the indicator.

The long-term unemployed are often overrepresented in the groups of non-responders to surveys and dropouts in longitudinal studies [41–43]. Participation in the EDIPE -project was decided on the employment office based on discussion between the client and the counsellor specialized in disabled job seekers. The participants may be considered to represent the target group quite comprehensively or the long-term unemployed and disabled population. Moreover, the health records were collected comprehensively from registers of the existing institutions, both primary and specialized health care. A major strength of the study lies in the unique sample and data. But the uniqueness also means a limitation of generalizability. Because the findings describe the situation of the long-term unemployed with remarkable health and employability problems, the results may not be generalized into the unemployed population as a whole. Furthermore, the results are confidently generalizable in societies like Finland, which represents the Nordic welfare state.

In addition to demonstrating the extent of unidentified MDD among the long-term unemployed, this study showed, to the best of our knowledge for the first time, that identification is negatively associated with duration of the unemployment. The reasons for this evident neglect of MDD range from structures of the health services and practices of health care professionals to the help-seeking behavior of long-term unemployed individuals. Nevertheless, as a policy conclusion, attention should be paid to reducing the employment status related inequality embedded in the structures and in the practices of the health care system.

Conclusions

We concluded that more attention should be paid in health care to identifying MDD among the long-term unemployed as a risk group. The protracted unemployment period seems to be an independent risk factor for non-identification of MDD in health care. There were problems especially in the identification of MDD among long-term unemployed men. Moreover, the long-term unemployed men in the study did not actively seek help even for serious depression. Perhaps some kind of occupational health care system for unemployed could raise the identification rates and achieve adequate treatment for depression, which might even improve the chances for re-employment. A major reform of social and health care services is currently ongoing in Finland in an attempt to affirm the collaboration and streamline the health, social and welfare services [44]. Hopefully these prospective multi-sectoral changes will also improve the health services for the long-term unemployed.

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Compliance with ethical standards

Ethical standards The material of the study was based entirely on the record information and there were no personal contacts to the subjects of the study. The research was approved by the ethics committee of Pirkanmaa Hospital District, ETL-code R06032, and the registrar of the EDIPE-project. The manuscript does not contain clinical studies or patient data.

Conflict of interest The authors declare that they have no conflict of interest.

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PUBLICATION III

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Identification of Depression and Screening for Work Disabilities among Long-Term Unemployed People

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Abstract: The study explores whether clinical screening targeted at work disabilities among long-term unemployed people reveals eligible individuals for a disability pension and the importance of depression in granting the disability pensions. A total of 364 participants of the screening project were considered as eligible to apply for disability pension. Among them, 188 were diagnosed as clinically depressed. They were classified into those with earlier depression diagnosis (n = 85), those whose depression had not been diagnosed earlier (n = 103), and those without diagnosed depression (n = 176). The association of this 'Depression identification pattern' with being granted a disability pension was explored by logistic regression analyses. Compared to those with earlier diagnosis, those whose depression had not been diagnosed earlier were granted disability pension more commonly (72% vs. 54% OR 2.2, p = 0.012). Corresponding figures of the undepressed were 73%, OR 2.3, p = 0.002. The adjustments did not affect the results. Clinical examination of the long-term unemployed people in terms of work disability seems to be worthwhile. In particular, the examination reveals new depression diagnoses, which contribute more to the award of disability pension than depression diagnosed earlier by regular health care. Novel ways to detect depression among the unemployed should be implemented in the health and employment services.

Keywords: ability to work; depression; disability pension; health care; identification; unemployment

1. Introduction

Unemployment is the one of the most crucial social determinants of health inequalities. It is associated with increased morbidity and mortality alongside various accompanying financial and social problems [1–6]. The interaction between unemployment and ill-health is accounted for through both selection and causation mechanisms [5,7,8]. Connections between unemployment and certain health problems, such as musculoskeletal and mental health disorders, seem to be eminently obvious [9–11].

Among mental health problems, depression is closely related to unemployment [7,11–15]. Job loss predicts depression, which impairs the capacity for work and hence increases the risk of drifting towards prolonged unemployment [11,16].

Mediated by economic difficulties, unemployment impairs self-esteem, increases mental strain, the risk of poor living conditions and limited opportunities for health care services and, especially concerning long-term unemployment, also relates to impaired ability to work. Previous studies have revealed that long-term unemployed people had from three to four-times higher risk for impaired working ability than those without experiences of unemployment [17]. In earlier research, self-rated poor future working capacity, depression, prolonged unemployment, low level of education, economic difficulties, and higher age were attributes associated with poor working ability among unemployed people [17–20].

However, the assessment of one's working ability is frequently a complicated and time-consuming process, especially among those people with protracted unemployment periods who have become alienated from the labor market and job-related health requirements [20,21]. Moreover, the symptoms of depression may also complicate the work capacity evaluation, since clinicians may classify them as natural consequences of prolonged unemployment that jobless people should cope with. One reason for the complexity in the assessment of work ability may be the peculiar patterns of the utilization of health services among unemployed people. The symptoms of depression such as hopelessness, fatigue, and lowered self-esteem typically inhibit employability and motivation to seek treatment and rehabilitation [22]. According to earlier findings, diminished social support and social pressure as well as economic strain inhibit the motivation of long-term unemployed people to seek treatment [23]. Furthermore, unmet care needs have been revealed among unemployed people and among people with mental health disorders [23–25].

Considering the extensive research on a connection between impaired health and unemployment, research on work disabilities among long-term unemployed people, particularly in relation to depression, is still scarce. The first steps towards an appropriate treatment and assessment of work ability are identification and diagnosing the depression. Therefore, the aim of this study was to explore to what extent a project targeted at assessing the work ability of long-term unemployed people was able to detect undiagnosed depression, and if depression was associated with permanent work disability among long-term unemployed people, as seen in their having been granted a disability pension.

2. Materials and Methods

The study is based on a nation-level screening project among long-term unemployed clients of employment authorities initiated by The Ministry of Labour in Finland. The aim of the project, called 'Eligibility for a Disability Pension' (EDIPE), was to enhance the assessment of work disabilities among long-term unemployed people, to identify those who might actually be unable to work, to offer them a thorough medical examination and to issue a medical certificate to support their applications for a disability pension [26]. The employment authorities referred to the EDIPE project those long-term unemployed people, whose unemployment period had continued over a year, whose employability was limited and who had presented a medical certificate concerning the medical disorders affecting their employability.

Material for this study was drawn from the medical records of individuals involved in the EDIPE examinations during the period 2001–2006 in a Finnish, middle sized industrial town (Tampere). As background information, copies of their medical history documents were ordered comprehensively from primary and specialized health care. The clinical examinations were performed by a group of specialized physicians. Experienced psychiatrists assessed psychiatric diagnoses, which adhered to the criteria of ICD-10 [27]. A detailed description of the protocol of the EDIPE project and the data collection has been published earlier [28,29].

The research data comprised the medical records of 364 long-term unemployed people who had applied for a disability pension, temporary or permanent, and whose medical history documents

were available for at least a three-year period prior to their joining the EDIPE project. Within the EDIPE project only one disability pension application was made. All EDIPE clients whose records included the information on granting or rejecting the applied disability pension were included in the sample. The research was authorized by the registrar of the EDIPE project and approved by the ethics committee of Pirkanmaa Hospital District (ETL-code R06032).

The main explanatory variable of the study 'Depression identification pattern', was categorized as: (1). 'Depression diagnosis in EDIPE and in health care (HC)' included those diagnosed with depression both in the clinical examination of the EDIPE project and earlier in health care; (2). 'Depression diagnosis in EDIPE' included those diagnosed with depression in the examinations of the EDIPE project but not earlier in health care. Thus, this group was composed of those whose depression had remained undiagnosed in health care, independent on duration of the depression and number, if any, visits to health care; (3). 'No depression' included clients who were not diagnosed with depression in EDIPE examinations.

The outcome of the study was the granting of a disability pension (yes/no). In Finland, adults who are unable to work for medical reasons and whose ability to work cannot be restored by treatment or rehabilitation procedures may be granted a disability pension [30]. There were no unfinished disability pension application processes when the data collection started. Authorized pension providers made the decisions of the disability pensions.

The socio-demographic and other background variables were classified as follows: Age and the duration of unemployment were categorized into four classes in the bivariate analyses but set as a discrete variable in the multivariate analyses. Marital status was dichotomized to single, including unmarried, divorced or widowed, and married or cohabiting. Occupational status was trichotomized to non-manual workers, including entrepreneurs, unskilled, and skilled manual workers. Duration of unemployment refers to the continuous length of time a person being recorded as a jobseeker before the EDIPE examinations. The variable describing the use of health care services was determined as the number of visits to physicians in primary and specialized health care and hospitalizations during the three years prior to the EDIPE examinations. This was categorized into quartiles in the bivariate analyses and in the multivariate analyses handled as a discrete variable. The number of chronic somatic diseases was trichotomized in the bivariate analyses and in the multivariate analyses was handled as a discrete variable. The variable 'Alcohol use disorder (AUD) on EDIPE' consists mostly of alcohol abuse or alcohol dependence (F10.1, F10.2) diagnosed in the EDIPE examinations according to ICD-10 classification [27].

The relations between background variables and 'Depression identification pattern' were explored by bivariate analyses using Pearson's chi-square and Fisher's exact tests. The association of 'Depression identification pattern' with the granting of a disability pension was analyzed with binomial logistic regression, adjusting for various sets of the background variables. The main study question was if the two depression identification patterns differ with respect to the granting of a disability pension. Therefore, we chose the 'Depression diagnosis in EDIPE and in HC' group as the reference category of the explanatory variable. The results were expressed by odds ratios (OR) and their corresponding 95% confidence intervals (95% CI). Statistical significance was determined with p-value < 0.05. Statistical analyses were carried out with SPSS/Win software version 23, IBM^{R} SPSS^{R} Statistics.

3. Results

Among the total 364 individuals, men accounted for 63%, the mean age was 53 years (SD 6.6 years, range 24–63 years), 73% were single and 84% were manual workers, skilled or unskilled. Unemployment had lasted on average 11 years (SD 5.5 years, at maximum 35 years). There were, on average, 11 visits (SD 10.4, range 0–72) to health care in the three years prior to EDIPE examinations, nine percent having no visits at all and 24% having fewer than four visits. Almost everybody (97%) had at least one diagnosis of somatic disease. Diagnoses of AUD were set for 48% (Table 1).

Table 1. Associations of the depression (ICD-10 codes F3*) identification pattern with background variables, visits to Health Care (HC) three years preceding the EDIPE (Eligibility for a Disability Pension) project, number of somatic comorbidities, alcohol use disorder (AUD, ICD-10 codes F1*) diagnoses on the EDIPE project and granting a disability pension (DP).

	Depression Diagnosis in HC and EDIPE		Depression Diagnosis in EDIPE		No Depression		
	n	%	*n*	%	*n*	%	*p* [1]
	85	23.4	103	28.3	176	48.4	
Gender							**0.035**
Female	41	48.2	37	35.9	56	31.8	
Male	44	51.8	66	64.1	120	68.2	
Age							0.662
24–39 years	6	7.1	4	3.9	13	7.4	
40–49 years	19	22.4	18	17.5	32	18.2	
50–59 years	57	67.1	72	69.9	118	67.0	
60–63 years	3	3.5	9	8.7	13	7.4	
Marital status							0.293
Single	57	67.1	74	71.8	134	76.1	
Married/cohabiting	28	32.9	29	28.2	42	23.9	
Occupation							0.050
Non-manual worker	17	20.5	16	16.2	23	13.3	
Skilled manual worker	54	65.1	74	74.7	112	64.7	
Unskilled manual worker	12	14.5	9	9.1	38	22.0	
Duration of unemployment in quartiles							**0.003**
1–6 years	30	35.3	24	23.3	28	15.9	
7–10 years	21	24.7	22	21.4	39	22.2	
11–13 years	11	12.9	34	33.0	53	30.1	
14–35 years	23	27.1	23	22.3	56	31.8	
Visits to health care in quartiles (3 years prior to EDIPE)							**0.001**
0–3	16	18.8	31	30.1	40	22.7	
4–7	16	18.8	23	22.3	48	27.3	
8–13	16	18.8	30	29.1	52	29.5	
14–72	37	43.5	19	18.4	36	20.5	
Somatic diagnoses on EDIPE							0.539
None	2	2.4	1	1.0	8	4.5	
1–3	42	49.4	54	52.4	88	50.0	
≥4	41	48.2	48	46.6	80	45.5	
AUD on EDIPE							0.775
No	42	49.4	53	51.5	95	54.0	
Yes	43	50.6	50	48.5	81	46.0	

[1] *p*-values with statistical significance are given in bold face.

In the EDIPE examinations, depression was diagnosed in 188 (52%) of the participants, and in 85 (45%) of them the depression had been previously diagnosed in health care. Depression was more common in women (58%) than in men (48%) in the EDIPE examinations, and the previously diagnosed depression was clearly more prevalent in women (31%) than in men (19%). In addition to gender, depression diagnosis in health care was statistically significantly associated with short duration of unemployment (maximum six years), and high number of visits (upper quartile) to medical professionals, during the preceding three years (Table 1).

Flows of the study sample into disability pensioners in relation to 'Depression identification pattern' are presented in Figure 1. The application for a disability pension was accepted in about half (54%) in the 'Depression diagnosis in EDIPE and in HC' group, while the acceptance rates of 'Depression diagnosis in EDIPE' and 'No depression' groups were 72% and 73% respectively.

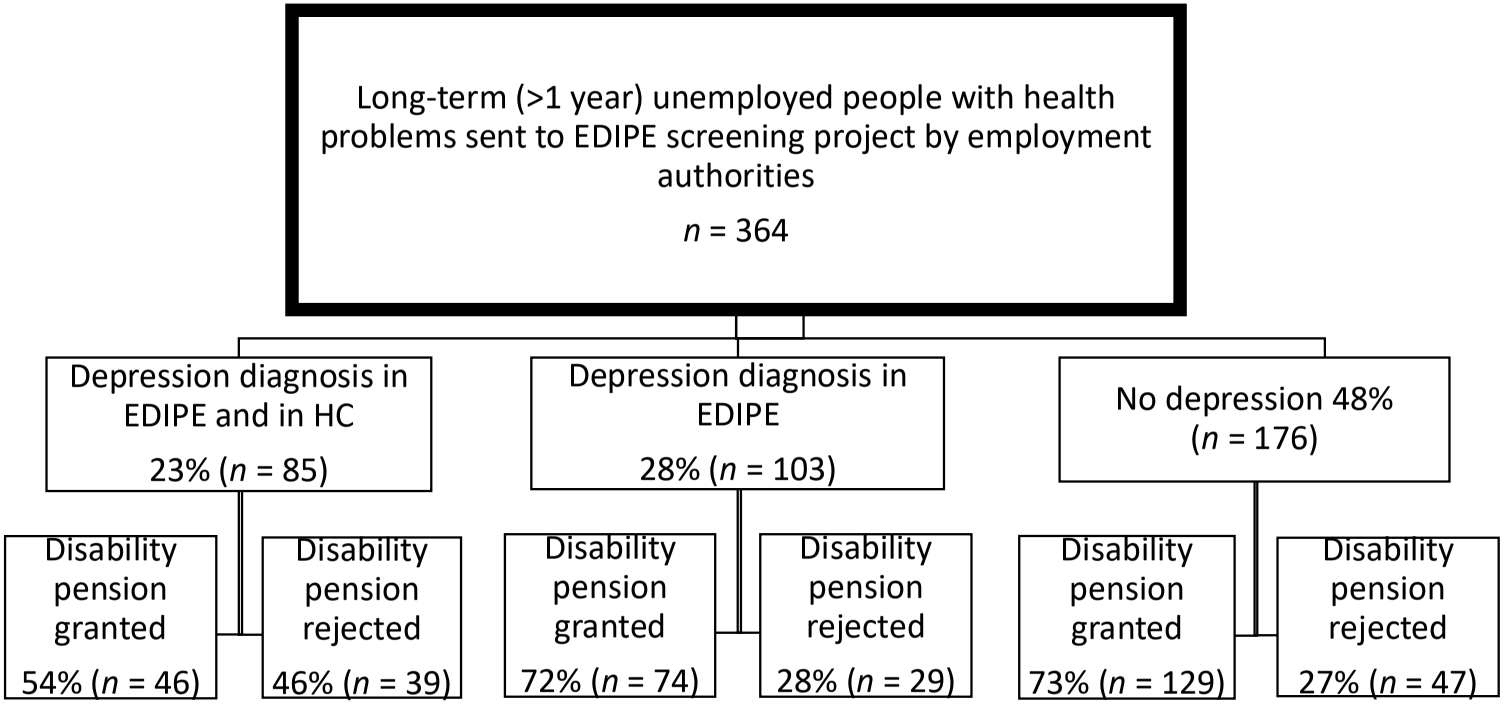

Figure 1. Flow chart of the participants of the EPIDE (Eligibility for a Disability Pension) project according to diagnosed depression and in relation to granting of disability pensions.

In the logistic regression analysis according to the 'Depression identification pattern' (Table 2), the probability for award of a disability pension in the 'Depression diagnosis in EDIPE' group was significantly higher (OR 2.16 $p = 0.012$) than in the 'Depression diagnosis in EDIPE and in HC' group. The difference remained statistically significant after controlling for sociodemographic background factors, number of visits to health care, and somatic diagnoses. Also, people in the 'No depression' group were more likely to be granted disability pensions than those in the 'Depression diagnosis in EDIPE and in HC' group.

Table 2. Associations of depression diagnosed on EDIPE (Eligibility for a Disability Pension) project and in health care (HC), on the EDIPE project only, or no diagnosed depression, with granting of the disability pension applied for.

	OR	95% CI	p [1]
Model 1			
Crude model			
Depression diagnosis in EDIPE and in HC	1		
Depression diagnosis in EDIPE	2.16	1.18; 3.96	***0.012***
No depression	2.33	1.35; 4.00	***0.002***
Model 2			
Adjusted for sociodemographic characteristics: Age, gender, marital status			
Depression diagnosis in EDIPE and in HC	1		
Depression diagnosis in EDIPE	2.05	1.11; 3.79	***0.022***
No depression	2.18	1.26; 3.79	***0.006***
Model 3			
Adjusted for: Age, gender, marital status, number of visits to HC			
Depression diagnosis in EDIPE and in HC	1		
Depression diagnosis in EDIPE	2.35	1.24; 4.43	***0.008***
No depression	2.44	1.38; 4.31	***0.002***
Model 4			
Adjusted for: Age, gender, marital status, number of visits to HC, number of somatic diagnoses on EDIPE			
Depression diagnosis in EDIPE and in HC	1		
Depression diagnosis in EDIPE	2.35	1.24; 4.43	***0.008***
No depression	2.45	1.39; 4.32	***0.002***
Model 5			
Full model. Adjusted for: Age, gender, marital status, occupational status, duration of unemployment, number of visits to HC, number of somatic diagnoses on EDIPE, AUD on EDIPE			
Depression diagnosis in EDIPE and in HC	1		
Depression diagnosis in EDIPE	2.22	1.14; 4.33	***0.020***
No depression	2.32	1.26; 4.24	***0.007***
Age	*1.04*	*1.00; 1.08*	***0.045***
Gender (male → female)	*1.25*	*0.73; 2.13*	*0.410*
Marital status (married → single)	*1.42*	*0.83; 2.44*	*0.199*
Number of visits to HC	*1.02*	*0.99; 1.05*	*0.187*
Number of somatic diagnoses on EDIPE	*1.05*	*0.91; 1.21*	*0.510*
Occupational status (skilled manual worker → non-manual worker)	*0.38*	*0.14; 1.03*	*0.057*
Occupational status (unskilled manual worker → non-manual worker)	*0.41*	*0.17; 0.94*	***0.036***
Duration of unemployment	*1.03*	*0.98; 1.08*	*0.283*
AUD on EDIPE	*0.43*	*0.24; 0.70*	***0.001***

[1] p-values with statistical significance are given in bold face.

4. Discussion

The present study showed that among the long-term unemployed people believed by the employment authorities to have impaired working capacity, referred to thorough medical examinations on a particular project, and assessed as unable to work, over two thirds were eligible for a disability

pension. Depression proved to be the major health problem: It was diagnosed in over half of the total study group and in over half of them the depression had not been diagnosed earlier. Moreover, earlier undiagnosed depression was associated with a significantly greater likelihood of disability pensions being granted than was depression diagnosed in health care prior to the project, independent of somatic comorbidity, number of health care visits, and six additional background factors.

The finding contrasts the reasoning that depression not diagnosed until the EDIPE examinations would be less severe—or less chronic—than depression not diagnosed earlier in health care. Assuming that our outcome, namely disability pension, indicates more severe depression, it is evident that in a considerable percentage of long-term unemployed people suffering from considerable depression, the depression goes undetected by the regular health service system. As the vast majority of our subjects had used health services in the three preceding years, there had been chances for the symptoms of depression to be identified. On the other hand, the visits may have taken place is such a clinical and institutional context that it is not easy to establish the client-physician relationship required for adequate diagnosing—and treatment—of the underlying depression. In addition, the fewer visits, the less likely was the opportunity to diagnose: The proportion of those with very few visits (0–3 in three years) was higher (30% vs. 19%) in the 'Depression diagnosis in EDIPE' group than in 'Depression diagnosis in EDIPE and in HC' group. The symptoms of depression may also cause people to avoid the health services. However, in this study, adjusting for number of visits to health care did not affect the likelihood of disability pensions being granted. A potential explanation for the result may be that in those cases when depression was identified in health care as the crucial reason for work disability, the disability pension had already been applied for and granted. Therefore, this population with depression as the most essential reason for being granted a disability pension had never even been directed to the EDIPE examinations. In this respect, the assessment of work ability in health care would seem to operate fairly well. Another explanation might be that among the group 'Depression diagnosis in EDIPE and in HC' the depression was milder as a result of the effective treatment. Verifying these explanations, however, would require further study and a different research design.

Although the sample is unique, the results of our study are in line with those of earlier studies, showing that the use of health services is reduced during unemployment [31]. Even if unemployed people report their health to be poor more commonly than do employed people [25] and if the unemployed suffer frequently from anxiety and affective disorders [32], they have relatively few physician contacts. The results also corroborate what is already known about the prevalence of depression, its identification, and connection to the granting of disability pensions among long-term unemployed people with disabilities [17]. In particular, this study adds to earlier knowledge about mental health and work ability among the participants of targeted projects. In the group of long-term unemployed people referred to a psychosocial coaching program, over 60% received no disorder-specific treatment [33], and nearly one fifth of long-term unemployed men who participated in a work reintegration program were diagnosed with major depression, yet none of them received treatment for their depression [34]. In a Finnish study of unemployed people, particularly mental health disorders, impaired working capacity seemed to go unnoticed in health care [21].

A peripheral labor market position, such as unemployment, is associated with an increased hazard ratio for disability pension at the population level [35]. Moreover, long-term unemployed people have been found to be at nearly three-fold risk of ending up with a disability pension compared to employed people, and comorbid depression has increased the risk up to 11-fold [36]. Still, as the results of the present study suggest, a lot of poor work ability among the long-term unemployed is not detected by the ordinary health services. This indicates weakness at the point of contact to the service system. The costs of care are one of the reasons for reduced visits among unemployed people [5,23], but in particular in Finland the reasons also may lie in the structures of the health services. Well-designed and comprehensive occupational health care is available, providing easily-accessible and free of charge services exclusively to the employed population, whereas the health services for

unemployed people are limited to less optimally functioning municipal primary health care units and are liable to a charge [37].

In line with earlier population based studies, depression was diagnosed in health care more frequently among women, among those with the shortest unemployment period, among those who had made frequent visits to health care, and among non-manual workers [14,38,39], even the difference between non-manual workers and manual workers did not quite reach statistical significance.

Decisions on the granting of disability pensions are centralized at nation level insurance institutions in Finland. According to the Employees Pensions Act an employee is entitled to a full disability pension if her/his working ability is decreased by at least three-fifths as a result of an illness, handicap or injury, and if the work capacity cannot be restored by rehabilitation. In addition to medical reasons training, previous activities, age, and residence are taken into account as factors that relate to the ability to earn a living [30]. Such factors as the grounds for granting or rejecting the pension application are not explicated in the decisions. Concerning the present study, we could describe the processing of the application as a 'black box'; being aware of the varying importance of depression in individual client cases. In any case, depression fulfilling the diagnostic criteria might or might not be included in the list of diagnoses in the medical certificate to support the granting of pension.

The strength of the study was the unique material, consisting of both the findings of clinical examinations and records from health care prior to the examinations. Moreover, by virtue of the EDIPE project, the group studied consisted of the hard core of long-term unemployed people that tends to be overrepresented among non-attendees and dropouts in population-based studies [14,23,40,41]. To the best of our knowledge, there is no previous research information on the identification of depression and granting of disability pensions among long-term unemployed people. Little, moreover, appears to be known about the need to assess the work ability of unemployed people.

The study also has some limitations. Because the study population had a rather long spell of unemployment and significant health and employability problems, the results cannot be generalized to the unemployed population as a whole. Diagnoses of depression, especially at the level of primary health care, may suffer from some uncertainty. As also shown in previous studies, the recording of the depression diagnosis may be missing from the records, regardless of the accurate identification [42]. We applied fairly strict criteria for depression, requiring an explicit diagnosis for a record to be valid. Furthermore, the depression diagnostics in the EDIPE examinations were not standardized in the sense of a uniform procedure. However, the diagnoses were based on clinical examination by the experienced psychiatrists engaged on the EDIPE project and adhered to the ICD-10 criteria.

Future research should focus on the needs for treatment and assessment of working capacity among those long-term unemployed people with depression whose use of health care services is scanty and who do not actively seek treatment. To identify these people closer co-operation between employment services and health services would be essential. Furthermore, the factors closely associated with the identification of depression and granting disability pensions such as comorbidity with personality disorders, the factors connected to doctor-patient relationship, and the specific characteristics of the employment career deserve more attention in future research.

5. Conclusions

Screening for decreased work capacity among the long-term unemployed people appears to be required, as disability pensions are granted to two out of three people who, after undergoing thorough clinical examinations, apply for such pensions. Depression contributes to decreased work capacity in half of the applicants. Acceptance of the application is significantly more likely if depression is diagnosed in the screening examinations than when it has already been diagnosed in health care prior to the examination. Rather than the tendency of the health care professionals to ignore depressiveness in the long-term unemployed clients, the result suggests than in particular those long-term unemployed who suffer from depression are at increased risk of marginalization from health services. Novel services should be established to improve the recognition of their work disabilities and care needs among

long-term unemployed people. Closer co-operation between employment and health authorities and active guidance for jobless people in using the health services especially focused on the problems connected to long-term unemployment would be crucial.

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PUBLICATION IV

Healthcare attendance styles among long-term unemployed people with substance-related and mood disorders

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Original Research

Healthcare attendance styles among long-term unemployed people with substance-related and mood disorders

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ABSTRACT

Background: Both increased and decreased health service usage and unmet care needs are more prevalent among unemployed people than in the general population.
Study design: This study investigates the associations of substance-related and mood disorders among long-term unemployed people with styles of healthcare attendance in Finland.
Methods: The study material consisted of the health register information on 498 long-term unemployed people in a project screening for work disabilities. The data were analysed by mixed methods: qualitative typological analysis was applied to identify differential healthcare attendance styles, and the associations of the obtained styles with mental health disorders were analysed quantitatively by multinomial logistic regression.
Results: Three styles, characterized as smooth, faltering and marginalized, were identified. Compared with participants with the smooth attendance style without mental disorders, those with the faltering style had tenfold relative risk for substance-related disorder and fourfold relative risk for mood disorder. Those with the marginalized style had fivefold relative risk for substance-related disorder and twofold relative risk for mood disorder. Adjusting for background characteristics did not alter the statistical significance of substance-related disorder. In the case of mood disorders, the statistical significance persisted throughout the adjustments in the faltering style.
Conclusion: Dysfunctional use of health services is more common among people with substance-related or mood disorders, who are at risk of drifting towards long-term unemployment and work disabilities. The early detection of those with faltering or marginalized healthcare attendance style may prevent prolonged unemployment, enable rehabilitation measures and reduce the risk of disability pensions.

Introduction

Unemployment causes a lot of human misery and remarkable deprivation of financial and other resources and potentials. Moreover, unemployment is accompanied by higher morbidity, evidently due to both selective and causal processes.[1–4] This also applies to mental health disorders.[5,6] Mood and alcohol-related disorders especially are more prevalent among unemployed people than in general or employed population.[4,6–12] Mood and substance use disorders may increase the risk for prolonged unemployment.[13]

Despite convincing information on increased morbidity, what is known of healthcare attendance among unemployed people is inconsistent. Several studies have shown that unemployed people attend healthcare services more frequently than general population.[12,14–17] At the same time, there is also evidence of decreased use particularly among long-term unemployed people.[14,16,18,19] Both increased and decreased healthcare attendance may be symptomatic of dysfunctional use of health services. Furthermore,

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in the health services, individual care needs appear to go unheeded among unemployed people and also those with depression.[16,20] Overall, little is known of the possible special healthcare needs for unemployed people.[21]

The style of health service usage may also play a decisive role in both neglected individual care needs and work capacity evaluation among unemployed people. Most of the earlier research on healthcare attendance has been based on quantitative data, such as the number of visits.[12,14,18,19] However, the information provided by quantitative studies remains unsubtle, and it does not offer well-functioning tools for clinicians to identify those at risk for drifting towards long-term unemployment and work disabilities. Qualitative methods have also been applied, but such research is scanty, especially among unemployed people.[22,23] Mixed methods research has proven productive in the research of healthcare services.[24] A mixture of qualitative and quantitative methods would appear particularly promising to obtain more comprehensive and detailed knowledge on the healthcare attendance in a hard-to-reach group such as long-term unemployed people.[23] Moreover, the mixed methods approach could help to explain the inconsistency of earlier findings on the usage of health services among unemployed people.

The evidence that both health selection and social causation contribute to poor health among long-term unemployed people and the risk of impaired ability to work due to poor health occasioned the initiation a nationwide screening project entitled Eligibility for a Disability Pension (EDIPE) by the Ministry of Labour in Finland.[25] It was assumed that a significant proportion of long-term unemployed people might actually be unable to work. The mission was to screen out those people, offer to them thorough medical examination and, whenever the criteria seemed to be met, to issue a medical certificate in favour of their being granted a disability pension. Even if the priority of the EDIPE project was to screen out those eligible for a disability pension, a lot of data on the health and also healthcare attendance of long-term unemployed people were accumulated.

We use the EDIPE data to learn more about the healthcare contacts of long-term unemployed people. In particular, the aim was to identify different styles of healthcare attendance and to explore in which ways these styles are associated with substance-related and mood disorders. Such knowledge might make it possible to identify and intervene earlier in cases of impending work disabilities and prolonged unemployment.

Methods

Employment authorities referred to EDIPE examinations of those long-term unemployed people who had medical disorders limiting their ability to work. The examinations consisted of an interview with a psychologist and the examination by a specialist physician. Whenever needed, special consultations, (neuro)psychological investigations, radiological imaging or laboratory tests were conducted.[23,25,26] In addition to the results of the EDIPE examinations, their client register was made up of the referrals compiled by employment authorities, information on the working career from the register of the Finnish Centre for Pensions and the records of past visits to primary and to specialized outpatient and inpatient healthcare services. The records were obtained as comprehensively as possible in the interests of a thorough assessment of ability to work.

The subjects of this study consist of a random sample of 505 clients of the EDIPE examinations in Tampere, Finland. The study was based entirely on the medical register information, and there were no personal contacts to the subjects of the study. Data on their past healthcare attendance were obtained from the records, and data on mood or substance-related disorders were based on the diagnostics during the EDIPE examinations.

The healthcare attendance styles were explored by typological analysis, which explores data through non-hierarchical categorization.[24,27] The analysis was started as a group work with 50 randomly selected cases. The research group consisted of six researchers. The healthcare attendance style of every individual was characterized by two researchers independently of each other with informal descriptions in a few words. As a result of this collective reading of the EDIPE records, each individual's healthcare attendance style was described, for example, 'intensive', 'fixated', 'disappointed', 'self-assertive', 'paranoid', 'adequate' or 'correct'. The nature of the individual's commitment and co-operation might also have been described. Next, a group of four researchers further processed the characterizations of these 50 cases. They paid attention to the frequency of the visits to healthcare services and to the type of services (primary/specialized care, visits by appointment/emergency visits). By combining the characterizations, tentative definitions for categories were agreed on. Next, each case was classified by researchers independently, and in case of non-concurring classifications, the definitions were elaborated until the classifications were congruent. Finally, the three researchers could agree on assigning the characterizations to three categories or attendance styles. Applying the agreed criteria, one of the researchers (V.H.H.) classified the remaining 448 participants as having the 'smooth', the 'faltering' or the 'marginalized' attendance style (Table 1).[23,28] Seven of the 505 participants could not be classified because of lacking information (either they had not given consent to the medical records being consulted or the records were no longer available).

In the clinical examinations of the EDIPE project, experienced psychiatrists assessed psychiatric diagnoses according to the International Classification of Diseases 10 (ICD-10) criteria.[29] The most prevalent diagnoses were substance-related (F1*) and mood disorders (F3*). Based on these data, dichotomous variables substance-related disorder vs. no mental disorder and mood disorder vs. no mental disorder were formed.

The background variables were classified as follows: in the bivariate analyses, age and duration of unemployment were categorized into four classes, but in the multivariate analyses, they were set as a discrete variable. Marital status was dichotomized to single, including unmarried, divorced or widowed, and married or cohabiting. Occupational status was trichotomized to skilled and unskilled manual workers and non-manual workers, including entrepreneurs. Duration of unemployment refers to the continuous length of time a person was recorded as a job seeker before the EDIPE examinations. The number of chronic somatic diseases was trichotomized in the bivariate analyses, and in the multivariate analyses, it was handled as a discrete variable.

The three-class 'healthcare attendance style' was used as the dependent variable in both bivariate and multivariate analyses. Hence, qualitative methods were combined with quantitative methods. According to earlier studies, mixed methods may reveal aspects not found by exploiting the methods separately. In addition, using mixed methods mostly offers a more holistic view of the study object.[30,31]

Pearson's chi-squared test was used to study the associations between the background variables and the attendance style. The associations between mental health and attendance style, separately for substance-related and for mood disorders, were further analysed by multinomial logistic regression models, defining those with no psychiatric diagnosis in the smooth style as a reference category. The analyses were run first unadjusted and then adjusted for four sets of background variables which represent the possible confounders: gender and age (model 1), gender, age and

Table 1
Categorization of healthcare attendance styles defined by qualitative methods.

Smooth style	Faltering style	Marginalized style
Appropriate use of reception hours and emergency service	Appointments and emergency visits for unclear reasons	Obvious medical problems with apparent need for care but not using the healthcare services
Commitment to therapies	Doctor-patient or therapeutic relationships tenuous	Terminates treatment periods. Tries to return home from the hospital as soon as possible
Attend check-up	Several appointments cancelled/missed	Cancels or misses appointments. Does not show up check-ups
Seek medical consultation for medical problems	May attend appointments intoxicated or make appointments to get medication for abuse or to demand disability pension	Procrastinates seeking treatment. Ends up arriving at the hospital by ambulance
Usually gets remedy	Does not receive the medical aid desired	Does not receive the medical aid needed
Medical personnel find the style of use of the health services appropriate	Patient and/or healthcare professionals dissatisfied	Forced to seek care for poor health supported by relatives or authorities

professional status (model 2), gender, age, professional status and somatic morbidity (model 3) and gender, age, professional status, somatic morbidity and duration of unemployment (model 4). The results are presented as relative risk ratios and their 95% confidence intervals. Statistical analyses were carried out with SPSS/Win software, version 23, IBM® SPSS® Statistics.

Results

Table 2 presents descriptive statistics of background factors according to the attendance style among the long-term unemployed people studied. Men accounted for more than half (64%). The age range was from 23 to 64 years (mean age 52 years, SD 6.9 years). Three of four were single. The majority were manual workers (84%). Duration of unemployment was long, on average 11 years and up to 35 years. Physical health problems were common; in particular, 70% of the participants obtained a diagnosis of musculoskeletal disease. Only 8% passed the EDIPE examinations without somatic diagnoses, while 22% ($n = 111$) were not diagnosed with any mental health disorder. Substance-related disorder was diagnosed in 48% of the participants, and 94% (223/237) of them had alcohol use disorder. Mood disorder (F3*) was found in half of the participants, and 97% (238/246) of them suffered from recurrent or non-recurrent major depression (F32* or F33*). Before the EDIPE examinations (i.e. according to the records obtained from various healthcare institutions), substance-related disorder had been diagnosed in 64% and mood disorder in 45% of those given that diagnosis in the EDIPE examinations. Among all participants, 45% had the smooth attendance style, 30% the faltering and 25% the marginalized style. Among those with substance-related disorder

Table 2
Distributions of background factors and substance-related (F1) and mood (F3) disorders (WHO; International Classification of Diseases 10 (ICD-10) classification) diagnose on the EDIPE project according to healthcare attendance in binomial analyses. Categories of healthcare attendance constituted by qualitative methods.

Background factors	Healthcare attendance						*p*
	Smooth		Faltering		Marginalized		
	N	%	N	%	N	%	
	226	45.4	147	29.5	125	25.1	
Gender							**<.001**
Female	111	61.7	50	27.8	19	10.6	
Male	115	36.2	97	30.5	106	33.3	
Age							**<.001**
23–39 yrs	8	25.0	17	53.1	7	21.9	
40–49 yrs	22	23.4	47	50.0	25	26.6	
50–59 yrs	172	51.7	80	24.0	81	24.3	
60–64 yrs	24	61.5	3	7.7	12	30.8	
Marital status							**<.001**
Single	141	38.0	121	32.6	109	29.4	
Married/cohabiting	85	67.5	26	20.6	15	11.9	
Occupational status							**<.001**
Non-manual worker	46	57.5	19	23.8	15	18.8	
Skilled manual worker	157	50.3	84	26.9	71	22.8	
Unskilled manual worker	15	16.1	42	45.2	36	38.7	
Duration of unemployment							**<.001**
1–6 yrs	68	59.6	29	25.4	17	14.9	
7–10 yrs	63	54.8	28	24.3	24	20.9	
11–13 yrs	51	37.5	34	25.0	51	37.5	
14–35 yrs	44	33.1	56	42.1	33	24.8	
Number of somatic diagnoses in EDIPE							**<.001**
0	9	23.1	14	35.9	16	41.0	
1–3	89	37.1	75	31.3	76	31.7	
≥4	128	58.4	58	26.5	33	15.1	
F1*-dg in EDIPE							**<.001**
No F-dg	76	68.5	14	12.6	21	18.9	
Yes	56	23.6	104	43.9	77	32.5	
F3*-dg in EDIPE							**<.001**
No F-dg	76	68.5	14	12.6	21	18.9	
Yes	113	45.9	74	30.1	59	24.0	

Bold face indicates statistical significance. EDIPE, Eligibility for a Disability Pension; WHO, World Health Organization.

diagnoses, about a quarter had the smooth attendance style, whereas the corresponding proportion was nearly a half among those with mood disorder. The background characteristics and binomial analyses are described in Table 2.

Multinomial logistic regression analyses (Table 3) showed that compared with participants with the smooth attendance style, those with substance-related disorder diagnosed in the EDIPE examinations had a tenfold relative risk for the previous faltering style and a fivefold risk for the marginalized style. Adjusting for age and gender, professional status or somatic comorbidity reduced the relative risk from fivefold to sixfold for faltering and around threefold for marginalized style but did not undermine the statistical significance of the results. Similarly, the risk for faltering style was fourfold and for marginalized style, it was twofold among those with mood disorder compared with those with smooth style without mental health disorders. In the case of faltering style, the statistical significance persisted throughout the adjustments, while in the case of marginalized style, the relative risks were reduced to statistically non-significant ones when sociodemographic variables were included but reached statistical significance when somatic comorbidity was added into the model.

Discussion

The main findings of the study were that among long-term unemployed people those with substance-related or mood disorder have from twofold to as much as tenfold relative risk for dysfunctional healthcare attendance style. A relative risk for faltering style of healthcare attendance was tenfold and for marginalized style fivefold among those long-term unemployed people with substance-related disorder, compared with those long-term unemployed people not having any mental health disorder and having the smooth attendance style. The adjustments for sociodemographic background characteristics, somatic comorbidity and duration of unemployment lowered the risk from fivefold to sixfold for faltering and to around threefold for marginalized attendance style. The relative risk in those with mood disorder for faltering attendance style was fourfold and for marginalized attendance style twofold. After adjustments with background factors, the relative risk ceased to reach statistical significance but adding somatic comorbidity into the adjusting models returned the statistical significance.

Earlier studies have revealed both increased and decreased usage and unmet care needs among unemployed people.[12,14–16,18,19] In the study by Åhs et al.,[16] in Sweden, unemployment was associated with the increased visits to physicians but also with unmet care needs. Unemployed people lacking of social networks in particular refrained seeking care. This finding relates to our results as the healthcare attendance of single people was more likely to be faltering or marginalized style. The risk from avoiding consultation with a physician was also related to depressive symptoms.[17] As opposed to our study, in nearly half of unemployed people with mood disorders, the attendance style was smooth. After reemployment among a group of long-term unemployed people, the visits to primary healthcare services increased to the same level as among those permanently employed and the number of visits remained lower among those who continued to be long-term unemployed in an earlier Finnish study.[18] The result could be interpreted to be in line with our study because the longer the unemployment period was, the smaller was the proportion with smooth attendance style. Mental health disorders, in particular, seemed to go unrecognized among unemployed people referred for work ability assessment in a study by Kerätär et al.[19] in North-East Finland. The study speculates that distrust in medical services is a plausible explanation for refraining from seeking care. The result also concurs with our results of increased risk for marginalized attendance style among unemployed people with substance-related or mood disorders. Increased use of health services was connected to female gender, middle age, being single and higher level of education in the systematic review by Roberts et al.[32] In our study, female gender and non-manual occupation were associated with the smooth attendance style. The attendance style of participants aged fifty years and older was mostly smooth, similar to that of those living in a relationship. However, the results of quantitative studies, such as that by Roberts et al.,[32] and this study using mixed methods are not fully comparable. A Danish study has shown that mental disorders and unemployment increase the visits to general practitioners (GPs) twofold, whereas alcohol consumption above the recommendation decreases the number of visits.[33] The latter finding seems to be in line with our study showing an increased risk

Table 3
Associations of faltering and marginalized styles of healthcare attendance among long-term unemployed people with risk for substance-related (F1) and mood (F3) disorders (WHO ICD-10 classification) described by relative risk ratios (RRRs) with corresponding 95% confidence intervals (CIs) Those without mental health disorders with smooth attendance style served as the reference category.

F-diagnoses	Healthcare attendance style		
	Smooth (Ref)	Faltering	Marginalized
F1*-diagnosis			
- no F-diagnosis (ref)	68% ($n = 76$)	13% ($n = 14$)	19% ($n = 21$)
- F1*-diagnosis	24% ($n = 56$)	44% ($n = 104$)	32% ($n = 77$)
RRR (95% CI) (Unadjusted)	1	**10.08** (5.23,19.43)	**4.98** (2.75,9.01)
RRR (95% CI) (1)	1	**5.91** (2.94,11.86)	**3.05** (1.61,5.78)
RRR (95% CI) (2)	1	**5.40** (2.67,10.91)	**2.92** (1.51,5.62)
RRR (95% CI) (3)	1	**5.42** (2.67,11.00)	**3.55** (1.78,7.08)
RRR (95% CI) (4)	1	**5.07** (2.48,10.37)	**3.34** (1.66,6.71)
F3*-diagnosis			
- no F-diagnosis (ref)	68% ($n = 76$)	13% ($n = 14$)	19% ($n = 21$)
- F3*-diagnosis	46% ($n = 113$)	30% ($n = 74$)	24% ($n = 59$)
RRR (95% CI) (Unadjusted)	1	**3.56** (1.87,6.75)	**1.89** (1.06,3.36)
RRR (95% CI) (1)	1	**2.63** (1.35,5.12)	1.70 (0.92,3.14)
RRR (95% CI) (2)	1	**2.58** (1.32,5.06)	1.77 (0.94,3.32)
RRR (95% CI) (3)	1	**2.57** (1.31,5.05)	**2.36** (1.19,4.69)
RRR (95% CI) (4)	1	**2.74** (1.38,5.44)	**2.40** (1.21,4.78)

Multinomial logistic regression analysis adjusted for (1): gender and age, (2): gender, age and occupational status, (3): gender, age, occupational status and somatic morbidity and (4): gender, age, occupational status, somatic morbidity and duration of unemployment. Bold face indicates statistical significance. EDIPE, Eligibility for a Disability Pension; WHO, World Health Organization.

for marginalized attendance style among people with substance-related disorders. In the study by Staiger et al.,[22] low mental health literacy, stigma, discrimination and structures of health care were found to be barriers to help seeking for mental disorders among unemployed people. Insight regarding mental health problems, a good and supportive relationship with the GP or therapist and support from the employment authorities served as facilitators for seeking care. Barriers to care seeking included hopelessness, long duration of unemployment, stigmatization and poor recognition of mental health problems in healthcare services.[22] Wigand et al.[34] found instrumental and attitudinal barriers to seeking mental health care among unemployed people in their longitudinal study. The barriers may relate to an increased risk for marginalized or faltering attendance style.

Our study may provide a way to interpret the inconsistent findings of quantitative studies showing both increased and decreased healthcare use during unemployment. In particular, our study shows that long-term unemployed people without mental health disorders mainly use health services adequately, whereas those with substance-related or mood disorders had a significant risk for inadequate use. The increased usage during unemployment could be interpreted as adequate or smooth because morbidity is known to be increased during unemployment. Earlier research implicitly acknowledges the smooth and marginalized healthcare attendance styles. Although the faltering style is not directly associated with earlier research results, it demonstrates how text-based qualitative research enables more diverse findings than research relying solely on quantitative data.

Altogether, the findings of this study are consistent with those of earlier research, according to which mental health disorders among unemployed people frequently go undiagnosed and untreated in health care.[35–37] Regarding our study sample, about half of both the substance-related disorders and mood disorders found in the EDIPE examinations had been diagnosed in health care before the examinations.[26,38,39] The study therefore also sheds novel light on the relevance of the EDIPE project: if the healthcare attendance style is faltering or marginalized, the identification of mental disorders, let alone the assessment of work capacity, may be almost impossible in the standard healthcare settings.

Studies so far on attendance have mainly focused on the frequency of visits to health care. There is a lack of qualitative studies on the usage of the services. Staiger et al.[40] applied content analysis in studying barriers and facilitators in help seeking among unemployed people with mental health problems in a study using a semistructured interview tool. Palinkas et al.[24] concluded in their review article that mixed methods are especially well suited to mental health service research.

The key strength of this study is the particular set of register-based data on a large number of long-term unemployed people, a group which frequently falls among the non-responders and dropouts in other kinds of research designs.[41,42] These exceptional data consisted of information on the health, use of healthcare services and ability to work of long-term unemployed people. Furthermore, the use of mixed methods technique, in which a variable produced by qualitative methods was analysed quantitatively, opened up a new perspective on the results of earlier studies on the use of health services among unemployed people.

The limitations of the study are connected to methodological issues. The data accumulated on the EDIPE project were collected primarily for clinical purposes and consequently were not recorded as systematically as it would be the case in a scientific project. In addition, the comprehensiveness of the information varied somewhat, as the recording may have been biased towards the clinical relevance of the data. Controlling for the bias in qualitative studies has been challenged.[43] We tried to control for bias by using previously tested group work.[28] What is essential in this method is to elaborate the criteria of the categories until there is no discrepancy between researchers' views. In addition, in this kind of process, the added value of Cohen's kappa is minor. Moreover, when all the participants with accessible information were categorized, the internal selection bias was minimized.

As increased knowledge of attendance styles among very long-term unemployed people is on the one hand a strength of the study, on the other hand, it is a limitation as the study population consisted of individuals who, in addition to being very long-term unemployed, had impaired work ability due to significant health problems, and thus, the results cannot be generalized unambiguously to all unemployed people. However, similar or different attendance style categories could evidently be found among less long-term unemployed as well as among employed people, with and without mental health problems. Still, the quest for a 'control group' is not relevant in this kind of mixed methods approach. The retrospective frame of this study is also a limitation, calling in future for prospectively designed studies on attendance styles among unemployed people.

Conclusions

There seems to be a high risk for dysfunctional use of health services among people who are or may later drift towards long-term unemployment and work disabilities with substance-related or mood disorders. This could explain the earlier inconsistent findings reporting both more or less frequent visits to health care among unemployed people. The variation in healthcare attendance among long-term unemployed people could be more convincingly explained by qualitative differences rather than quantitative figures. The findings of this study also emphasize the importance of more active screening of long-term unemployed people in health and employment services, especially those with faltering or marginalized attendance style, and of guiding them to rehabilitative services tailored specifically to their needs.

Author statements

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Ethical approval

The research was approved by the ethics committee of Pirkanmaa Hospital District, ETL-code R06032, and the registrar of the EDIPE -project.

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Competing interests

The authors declare that they have no competing or conflicting interests.

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