Work capacity and mental health – the phenomena and their importance in return to work

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ABSTRACT

Mental health problems are common and a major cause of decreased work capacity and sickness absence. The aim of this thesis was to investigate (i) work capacity and mental health problems as predictors of return to work (RTW) and work participation (WP), and to explore (ii) the phenomenon capacity to work while depressed and anxious.

Methods: A general population-based cohort of employed individuals aged 19-64 years (*n*=2502) registered as sick-listed in 2008 was identified. Self-reported persistent mental illness, self-assessed mental well-being and work capacity in relation to knowledge, mental, collaborative and physical demands at work were investigated as predictors of RTW and WP. The phenomenon was explored qualitatively by lived experiences from men and women (*n*=17) with self-reported depression/anxiety working at least part-time, and by health care professionals' (*n*=21) understanding of depressed and anxious patients' work capacity. Focus groups were used.

Results: Individuals with mental health problems and low work capacity had prolonged time until RTW compared with individuals lacking such problems. Low mental well-being and low work capacity (knowledge, physical, collaborative) also predicted limited WP (off sick ≥15 days in 2009). The phenomenon capacity to work while depressed and anxious encompassed lost familiarity with one's ordinary work performance, the use of a working facade and new time-consuming work practices. Capacity could vary greatly from one moment to another. The capacity was distinguished by constituents related to tasks, time, context and social interaction. The work community emerged as an important part.

Conclusions: Low mental well-being and low work capacity predicted RTW and WP. The phenomenon capacity to work emerged as a complex and comprehensive concept. The use of both quantitative and qualitative methods provided greater understanding of the dynamic relationship between mental health problems and work capacity, and their importance in the return to

work process. The findings could be used to early identify mental health problems and low work capacity in individuals, and provide deeper understanding of the reduced work capacity.

Keywords: Mental health, return to work, work participation, work capacity, the phenomenon capacity to work while depressed and anxious

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SAMMANFATTNING PÅ SVENSKA

Psykiska problem är vanliga bland yrkesverksamma och en vanlig orsak till nedsatt arbetsförmåga och sjukskrivning i Sverige. Syftet med denna avhandling var att undersöka (i) psykiska problem och självskattad arbetsförmåga som prediktorer för återgång till arbete och framtida arbetsdeltagande samt att utforska (ii) fenomenet förmåga att arbeta vid depression och ångest.

Metod: En generell befolkningskohort från Västra Götaland, med anställda individer i åldrarna 19-64 år (n=2502) och registrerade som sjukskrivna under 2008 identifierades. Självrapporterade psykiska problem (varaktig psykisk sjukdom och psykiskt välbefinnande) och självskattad arbetsförmåga i förhållande till kunskapskrav, mentala krav, samarbetskrav och fysiska krav i arbetet undersöktes som prediktorer för tid till återgång i arbete samt för begränsat arbetsdeltagande till följd av sjukskrivning under 2009. Fenomenet undersöktes med en fenomenologisk ansats. 17 individer (minst deltidsarbetande) berättade i fyra fokusgrupper om levda erfarenheter av förmågan att arbeta vid depression och/eller ångest. Vidare gjordes en innehållsanalys baserad på fyra fokusgrupper med vårdpersonal (n=21) som berättade om sin erfarenhetsbaserade förståelse av fenomenet.

Resultat: Gruppen med psykiska problem och gruppen med låg arbetsförmåga hade en högre sannolikhet för långsammare återgång i arbete jämfört med dem som inte hade psykiska problem eller låg arbetsförmåga. Gruppen med lågt psykiskt välbefinnande och gruppen med låg arbetsförmåga i relation till kunskaps-, samarbets- och fysiska krav i arbetet hade en högre sannolikhet för begränsat arbetsdeltagande (≥15 sjukskrivningsdagar) under 2009. Fenomenet förmåga att arbeta vid depression och ångest innebar att inte längre känna igen sig i sitt eget arbetssätt, användande av en arbetsfasad och nya tidskrävande arbetsvanor. Förmågan kunde variera från en stund till en annan. Fenomenet synliggjordes av nio beståndsdelar relaterat till arbetsflöde, tempo, omgivning och samspel med andra. Ur vårdpersonalens förståelse för fenomenet identifierades sex kategorier: en förändring från det välbekanta till det oigenkännliga, nedsatt och förändrad förmåga, att inte släppa arbetet, den krackelerande tillvaron utanför arbetet, att inte leva upp till arbetsplatsens förväntningar, och ett undflyende begrepp.

Slutsatser: Detta är den första avhandling som undersökt vad arbetsförmåga är vid depressions- och ångestsjukdom, samt den självskattade arbetsförmågans betydelse vid återgång i arbete i samband med

sjukskrivning. Psykiska problem och låg arbetsförmåga visade sig öka sannolikheten för att det tog längre tid till återgång i arbete och begränsat arbetsdeltagande ett år senare. Fenomenet förmåga att arbeta vid depression och ångest visade sig vara ett komplext och innehållsrikt begrepp. Designen med både kvantitativa och kvalitativa metoder möjliggjorde en ökad förståelse för det dynamiska förhållandet mellan psykiska problem och arbetsförmåga, samt deras betydelse för återgång i arbete. Fynden kan användas för att underlätta tidig identifiering av psykiska problem och nedsatt arbetsförmåga samt ge en fördjupad förståelse för den nedsatta arbetsförmågans innehåll.

LIST OF PAPERS

This thesis is based on the following studies, referred to in the text by their Roman numerals.

I. Hensing G, Bertilsson M, Ahlborg G Jr, Waern M, Vaez M. Self-assessed mental health problems and work capacity as determinants of return to work: a prospective general population-based study of individuals with all-cause sickness absence. BMC Psychiatry. 2013;13:259 doi: 10.1186/1471-244X-13-259, Open access

II. Bertilsson M, Vaez M, Waern M, Ahlborg G Jr, Hensing G. Self-assessed mental well-being and work capacity as predictors of work participation – a follow-up study of newly sick-listed individuals. *(submitted)*

III. Bertilsson M, Petersson E-L, Östlund G, Waern M, Hensing G. Capacity to work while depressed and anxious – a phenomenological study. Journal of Disability and Rehabilitation. 2013;35(20):1705-11

IV. Bertilsson M, Löve J, Ahlborg G Jr , Hensing G. Health care professional's experience-based understanding of capacity to work while depressed and anxious – a focus group study. *(submitted)*

CONTENT

ABBREVIATIONS

AUDIT	Alcohol Use Disorders Identification Test
CMD	Common mental disorder
COREQ	Consolidated Criteria for Reporting Qualitative Research
GSE	General Self-Efficacy scale
HAP	Health Assets Project
ICF	International Classification of Functioning, Disability and Health
LISA	The Longitudinal Integrated Database for Sickness Insurance and Labour Market Research
OECD	Organisation for Economic Co-operation and Development
PEO	The Person-Environment-Occupation model
SES	Socioeconomic status
SSIA	The Swedish Social Insurance Agency
WAI	The Work Ability Index
WHO	World Health Organization

DEFINITIONS

Mental health problems	There are several existing terms for mental health problems. In this thesis, mental health, mental health problems and mental ill-health are used and relate to depression and anxiety disorders. In the literature, these disorders are often called common mental disorders (CMD). Other terms used include psychiatric disorders, mental disorders, mental illness or mental distress. In this thesis, when referring to other studies, we have most often used the authors own chosen term. Thus, several terms are used in the thesis
Work capacity	We have used the term work capacity in the quantitative studies. In the qualitative studies we have used capacity to work since we explored a phenomenon, not a concept. In the literature, numerous terms and concepts are used. To avoid deviating from authors' terms/concepts, their original concepts are most often used when referring to them in this thesis. This unfortunately means that several concepts are used in the text.

1 INTRODUCTION

Mental health problems are common in the work force and are a major cause of decreased work capacity (1-5). The high prevalence of mental health problems presents a challenge for the labour market (5). For the individual, exclusion from the work force due to mental health problems can lead to social exclusion and economic strain. For employers and society, the associated consequences include considerable costs and less economic growth (1, 6-8). Several reviews (2, 9-16) and researchers (17-20) call for the need of more knowledge regarding mental health problems and associated decreased work capacity, sickness absence and return to work.

In this thesis capacity to work for individuals with depression and/or anxiety disorders or symptoms is explored, and the association between mental health problems and work capacity and return to work and future work participation is examined.

1.1 Mental health problems in society

The 12-month prevalence for anxiety disorders have been estimated to be 14% in Europe and 18% in America; corresponding figures for mood disorders are 8% and 9% respectively (21, 22). In Sweden, depression is the most common diagnosis in primary health care (23) and the lifetime risk is 20% for men and 30-40 % for women (24). Thus, depression- and anxiety disorders are a major public health concern. The concept of common mental disorders (CMD) encompasses mild to moderate depression, anxiety disorders and mental exhaustion (2, 25-27).

The term “common” in CMD refers to their high prevalence in primary and occupational health care, where patients more often show a mixture of disorders rather than separate conditions (26, 28, 29). Subthreshold symptoms of depression and anxiety disorders are often included in CMD because of their association with sickness absence and reduced work capacity (26). An English study found that individuals with subthreshold symptoms at baseline were more than twice as likely as individuals without mental symptoms to report ≥14 days of sickness absence 18 months later. The authors stated that there was a risk of underestimation of impairments due to CMD, if subthreshold symptoms not are accounted for in surveys (26).

Furthermore, mental health problems are often comorbid with other disorders.

Comorbidity of mental health problems and other chronic disorders, such as musculoskeletal disorders, diabetes, arthritis and asthma is common, however the mental health problems are often not identified (30-32). A recent Danish study found that among sick-listed individuals without any psychiatric sick-leave diagnosis, 20% had undetected depression and 6% had undetected anxiety symptoms (33). Comorbidity with other disorders has been associated with prolonged sickness absence (32, 34, 35) and decreased work capacity (36), therefore it is important that mental health problems are identified and treated to improve capacity to work and reduce sickness absence. Moreover, comorbidity between anxiety and depression exaggerates the risk of sickness absence (37, 38).

The quality of life has been found to be highly affected in individuals with depression and anxiety (39, 40). A serious problem is the stigma related to mental health problem, hampering disclosure in the work place and even the possibility of getting employment (41, 42). Improving our knowledge of the impact of mental health problems on work capacity and associated sickness absence is of great importance and might contribute to reduce such stigma.

1.2 The importance of work capacity

Work is important for most people and it requires work capacity. The mental health problems have a large impact on work capacity (43-46). Decreased work capacity might lead to reduced productivity at work and hamper work participation. Decreased work capacity is also the main compensation criterion for sickness absence benefits in Social Insurance regulations. However, only a few studies describe work capacity while depressed and anxious.

1.2.1 Mental health problems impact on work capacity

At some point, most workers go through the experience of having to put in extra effort to get through the working day, however Dewa and Lin (2000) found that individuals with psychiatric disorders experienced 12 such extra

effort days more in a month compared with healthy controls (46). Compared with other disorders, mental health problems have been shown to have a larger impact on work capacity (44, 47). According to a recent review, there is evidence that health care professionals with CMD make more errors at work than their healthy co-workers and this has an impact on patient safety (48). Patient satisfaction with the care was also decreased as a result of the professionals' reduced work functioning. Furthermore, moderate evidence was found for that CMD decreased motor skills and overall work performance. Narrative evidence only was found for decreased interpersonal behaviour, lower energy, slower work speed and reduced coping with emotions (48). Other studies have shown that individuals with mental health problems have difficulties with working carefully, concentrating on work and interacting with people (49). Handling work load, getting started in the morning and thinking clearly are other difficulties found to be affected by mental health problems (50). Moreover, Wang et al (2004) found that these difficulties increased throughout the day (51).

Mintz et al (1992) showed that resumption of work capacity was much slower than remission of the mental health symptoms (52) and this was confirmed in several later studies (43, 53-55). In Sweden, the National Guidelines for Care of Depression and Anxiety Disorders highlights the importance of patients regaining previous work capacity and their return to work, not just recovery from symptoms (29). Although the impact of mental health problems on work capacity is well known, we know less about why mental health problems have such a great impact or why symptom reduction does not go hand in hand with regained work capacity. Moreover, as far as we know no studies have qualitatively explored the content of work capacity in individuals with mental health problems. A deeper understanding of working while affected by mental health problems could provide important knowledge. Such knowledge is important for work places and in health care to help prevent sickness absence among those still working and promote return to work among those already absent due to sickness.

1.2.2 What is work capacity?

There is no scientific consensus on how to define work capacity (14, 56, 57) or any clear medicolegal definition (58-60). There are numerous work capacity concepts (e.g. work ability (61), work functioning (55), work performance (51), functional disability (46), occupational functioning (62) and job performance deficits (63)) that are used more or less interchangeably.

The number of concepts hampers our understanding of work capacity (57). In occupational health research, sickness absence is often used as a proxy for work capacity (64, 65).

Work capacity can be understood as the interplay between the person, the environmental support and barriers, and the occupational demands including the work tasks (The Person-Environment-Occupation [PEO] model) (66). The relation between these components is dynamic, which means that the person and the context are intertwined with each other and with the persons work performance. They influence each other continuously (66, 67). This complexity makes work capacity difficult to study, but still important to do. The complexity has also made it difficult for professionals in health care and Social Insurance to interpret and assess work capacity in their clients (68-72).

Work capacity has been described theoretically by several authors (73-76), but not specifically for mental health problems. The Work Ability House model by the Finnish Institute of Occupational Health, is one of the more comprehensive models and includes the human's own resources, the work environment, the family and the close community out-side work in order to understand work capacity (77). The Individual Work Performance model is a conceptual frame work that tries to describe the complexity and different behaviors that constitute an employee's work performance. This model includes four dimensions: task performance, contextual performance, adaptive performance and counterproductive work behaviour (73). Instead of describing the content of work capacity, Sandqvist and Henriksson (2004) conceptualized a framework of levels of work functioning (78). The first level is the individual's capacity related to body functions and structures in the International Classification of Functioning, Disability and Health (ICF). The next level, work performance, involves the ability to carry out the tasks and duties at work. The third level, work participation, includes the overall ability to fulfill a worker role and to maintain a job position (78).

In relation to mental health problems, a few studies have tried to conceptualize work capacity through the development of assessment instruments specifically focused on work capacity in individuals with CMD (79, 80). Some qualitative studies describing experiences of depressive disorders and exhaustion mentioned aspects of decreased work capacity, but none with the explicit purpose of exploring work capacity in individuals with mental health problems (81, 82). To date, studies exploring work capacity in individuals with mental health problems is lacking.

1.3 Mental health problems and sickness absence

When the mental health problems become more severe and intervene with people's work capacity more permanently, work duties might be too difficult to carry out. In these situations, people might enter sickness absence. Sickness absence due to mental health problems is a major public health problem in Sweden and other countries (1, 2, 6). In the United Kingdom, the annual cost for mental illness was reported to be £8 billion for sickness absence, £15 billion for reduced productivity at work and £2 billion for replacement of absent workers in 2006 (83). In Sweden in 2009, sickness benefits costs due to psychiatric disorders accounted for SEK 4.4 billion, excluding activity and sickness compensation. Compensation for these accounted for another SEK 19 billion (84). This highlights the importance of addressing work capacity, mental health problems and the associated limited work participation in future research.

1.3.1 Mental health problems cause more and longer sickness absence

In Sweden, musculoskeletal and psychiatric disorders are the two most common reasons for sickness absence (3). Of these, psychiatric disorders were the most common for both men and women in Sweden in 2012 (3). More problematic is that mental health problems are often not identified among patients (30-32). Apart from the person's unfulfilled need for care, such unidentified mental ill-health prolongs sickness absence (32, 85, 86). Among the psychiatric disorders, depression and anxiety disorders are the major reasons for long-term sickness absence (87).

Sickness absence due to mental health problems has been associated with long durations (38, 88), longer than other causes of sickness absence (5, 89). Furthermore, a sickness absence spell due to CMD has been found to be a risk factor for recurrence of sickness absence for the same reason in individuals with CMD (90). To avoid long sickness absence spells and recurrences of sickness absence, mental health problems needs to be identified; predictors of return to work and work participation are important issues for investigation.

1.3.2 Sick but not sickness absent

Apart from the high level of sickness absence due to mental health problems, continuing to work while ill has been found among individuals with CMD (45, 46, 91). For example, in the Netherlands, the incidence of sickness absence due to a psychiatric disorder in 2007 was found to be 2% for men and women together (92). These figures were lower than the incidence rates of psychiatric disorders reported in the Netherlands (92). A possible explanation for that difference, given by the authors, was that people continued to work despite mental illness (92). Supporting these individuals is important because there are reported consequences of sickness presence at work such as lost productivity (6), ill-health (91, 93, 94) and sickness absence (91, 93). Improved knowledge of the capacity to work among individuals with mental health problems could be used to support these individuals.

1.3.3 The long-term perspective of sickness absence

To prevent sickness absence is also important from a long term perspective. Long-term sickness absence and disability pension are commonly reported risks of mental health problems (95-97) and Sweden has by far the highest proportion of disability pensions due to mental health problems (5). An important consequence is that mental health problems contribute to less working years since disability pensions due to psychiatric disorders have been found to be granted earlier in life compared with other disorders. A Norwegian study found that, among individuals with psychiatric disorders the mean age for a disability pension was 46 year compared with 55 years for individuals with musculoskeletal disorders (98). From a public health perspective it is important to prevent this consequence of sickness absence. Among the negative consequences, it jeopardizes people's future financial situation and contributes to lower life-time income.

1.4 Mental health problems, return to work and work participation

Although mental health problems are common in the working population and have a strong association with decreased work capacity and sickness absence,

there are few studies concerning return to work. The importance of time until return to work is underscored by the findings of Laaksonen et al (2013) who reported that the longer a sick leave spell is, the higher is the risk for recurrent sickness absence (99). Identifying predictors of time until return to work and future work participation is important to promote people's work participation.

1.4.1 What is known about mental health problems and return to work

Two reviews have investigated predictors of return to work in mental health problems (9, 10). Blank et al (2008) concluded that return to work is predicted by factors at work, living alone, older age, level of education, health risk behaviour and medical conditions, but they stated that no robust evidence existed (9). Similar results were reported in a review by Cornelius et al (2011) who found strong evidence for older age only. Limited evidence was found for gender, education, previous sickness absence, negative recovery expectations, socioeconomic status and health (stress, shoulder/back pain, depression, anxiety) (10). Recently, in a study population of all-cause sickness absence Vlasveld et al (2011) found that moderate to severe depressive symptoms, high physical job demands, high physical symptoms and age ≥45 year had significant association with a longer duration to return to work (89). In studies focused on mental health problems specifically, the results remain inconclusive. Age has been associated with return to work in some studies (100, 101), but not in others (102-104). Contrary to the limited evidence in the above mentioned reviews, later studies did not find education to be a predictor of return to work (100, 102, 104). With regard to previous sickness absence, Nielsen et al (2011) found an association between previous mental health-related sickness absence and return to work (105). However, Vlasveld et al (2011) and Flach et al (2012) found no association between previous sickness absence and return to work (89, 103).

Three studies found that self-assessed work capacity predicted return to work (106-108). However, Wåhlin et al (2012) found that self-assessed work capacity predicted return to work in individuals with musculoskeletal disorders but not in individuals with mental disorders (107). There is now a need for further studies to establish more robust results on the predictors of return to work.

1.4.2 Future work participation

There has been increasing interest in work participation within occupational health (109-114). Work participation is a matter of fairness in society, that all participants should have the right to be included in the work force. Sickness absence is a possible threat to work participation and to promote work participation, sickness absence has to be prevented. In many studies, work participation is measured through sickness absence (89, 111, 113, 115).

Among workers with depression, a recent review of factors associated with cutback in work participation found strong evidence for long durations of depressive episodes. Moderate evidence was found for more severe types of depressive disorders, the presence of comorbid mental and physical disorders, older age, history of previous sickness absence and decreased work functioning (89). Mental health problems have also been associated with recurrent sickness absence due to psychiatric disorders (90, 116).

1.5 Gender in relation to mental health problems, sickness absence and return to work

Differences have been found between women and men in relation to mental health problems and sickness absence. Women are affected 2 to 3 times more frequently than men by major depression, anxiety disorders and somatoform disorders (22). Also sickness absence rates due to psychiatric disorders are higher among women (3, 88, 117, 118). However, when length of sickness absence is considered, men have been found to have longer periods (88, 117, 119, 120). Inconclusive results have been shown between gender and return to work (88, 101-103, 105, 121). Furthermore, no differences have so far been found between women and men with mental health problems in the recurrence of sickness absence due to psychiatric disorders (116, 117).

1.6 Sickness insurance in Sweden

All inhabitants of working age are covered by national sickness insurance. One qualifying day, without economic reimbursement, is included. The first 7 days in a sick-leave spell is self-certified; thereafter a medical certificate is

required. Sick pay is covered by the employer for the first 14 days of a sick leave spell. From day 15, sick-leave benefit is granted from the Swedish Social Insurance Agency (SSIA).

Entry to the sickness benefit scheme requires both a diagnosis and related decreased work capacity. Psychiatric diagnoses are defined in manuals such as the International Classification of Diseases (122) or the Diagnostic and Statistical Manual of Mental Disorders (123). However, work capacity is scarcely defined (58-60, 124). In a recent Swedish national evaluation of quality in sickness certificates, only 54% were found to have approved quality. Of those with disapproved quality, most failed to identify and describe decreased work capacity(125) .

In Sweden, assessment of work capacity is done in accordance with Rehabiliteringskedjan [the Rehabilitation Chain]. Until day 90, assessment of work capacity is related to the individual's ordinary job. After that, work capacity is related to other work tasks possible within the work place. After day 180, an individual is entitled to sickness benefit only if he/she cannot carry out any other work in the labour market. However, if there are special reasons (return to ordinary work is highly probable before day 366) the latter regulation is not pursued. If work capacity is reduced in the long-term or permanently, sickness compensation provides financial security. Both sickness absence and sickness compensation can be part-time and combined with work.

The National Board of Health and Welfare in cooperation with SSIA in 2008 launched a Decision Support for physicians with regard to sickness absence processes for psychiatric disorders (126). In this Support recommended sick-leave duration is suggested for specific disorders. However, it is emphasized that sickness absence duration and work capacity must be assessed individually. For minor depression, the recommended sick-leave is 1 to 3 months, preferably part-time. For severe first-time depression, it is suggested that work capacity is reduced for 6 months. For anxiety disorders, the Support recommends that sick-leave should be avoided, but should be no longer than 2 to 4 weeks, preferably part-time. In more severe stress reactions with sleeping problems and cognitive dysfunction, sickness absence in 2 to 6 weeks can be considered, preferably part-time. Sickness absence duration due to depression and anxiety disorders decreased the year after implementation of the Decision Support compared to the previous year before, more for women than for men (126). However, since then, mental health-related sickness absence has increased again in Sweden (3).

1.7 The rationale for the thesis

Although mental health problems are common in the work force and number of sickness absences caused by these disorders is increasing, knowledge in several areas is still lacking, especially in our understanding of work capacity. Tackling the mental ill-health of the working-age population has become a key issue for the labour market and social policies in the Organisation for Economic Co-operation and Development (OECD) countries (1, 5). The OECD has stressed that not only the diagnoses should be of interest but, more importantly, the impact of mental disorders on functionality and work capacity also needs to be addressed (5, 127). To understand the consequences and experiences of reduced work capacity a conceptualization of the capacity to work for depression and anxiety disorders is called for (14). Moreover, the current situation offers no clear concept of how to measure work capacity among people who have mental illness, and that is truly hampering the progress in this field. To date, knowledge of what predicts return to work and work participation is inconclusive and further research is warranted. Self-assessed work capacity is an almost neglected area in the return to work research, despite the fact that decreased work capacity is a prerequisite for sickness benefits. The methodological approach presented in this thesis makes it possible to address these issues. A clinical health care rationale requires early indicators of what prolongs sickness absence. With such indicators health care might more easily identify those patients in need of interventions in order to promote return to work.

2 AIM

The aim of this thesis is twofold. The first aim is to explore the associations between mental health problems, self-assessed work capacity and return to work and work participation. The second aim is to explore the conceptual content of the phenomenon capacity to work in relation to depressive and anxiety disorders.

Study I
In a general population-based cohort of newly sick-listed, to examine self-assessed mental health problems and work capacity as determinants of time until return to work.

Study II
In a general population-based cohort of newly sick-listed, to investigate self-assessed mental well-being and self-assessed work capacity at baseline and to determine whether these factors predicted work participation a year later.

Study III
To explore experiences of capacity to work in persons working while depressed and anxious and to use these lived experiences in order to identify the essence of the phenomenon capacity to work.

Study IV
To explore and describe health care professionals' experience-based understanding of capacity to work in individuals with depression and anxiety.

3 PARTICIPANTS AND METHODS

This thesis is based on both quantitative and qualitative studies explaining mental health, work capacity, return to work and work participation. Studies I and II were quantitative and based on data from the Health Assets Project (HAP)(128). Studies III and IV were qualitative and based on focus group interviews. An overview of the studies is given in Table 1.

Table 1. Overview of design, study population, data collection, analyses and outcome in studies I to IV

	Study I	Study II	Study III	Study IV
Design	Prospective, longitudinal	Prospective, longitudinal	Phenomeno-logical	Qualitative
Study population	General population sample, newly sick-listed (*n*=2502)	General population sample, newly sick-listed (*n*=2502)	Purposive sample of working individuals with self-reported depression and anxiety (*n*=17)	Purposive sample of health care professionals (*n*=21)
Data collection	Questionnaire Register	Questionnaire Register	Focus group	Focus group
Analyses	Logistic regression (binary and multinomial)	Logistic regression (binary)	Phenomeno-logical analysis	Inductive content analysis
Outcome	Return to work	Work participation	The essence of the phenomenon capacity to work while depressed and anxious	Health care professional's understanding of capacity to work in patients with depressive and anxiety disorders

3.1 The Health Assets Project

HAP is a general population-based epidemiological cohort study with the purpose to study health, sickness absence and return to work, and with a specific focus on mental health problems. The study base was Västra

Götaland region in Sweden with 1.6 million inhabitants in 2008, and includes approximately 17% of the Swedish population. HAP consists of three cohorts: 1) a random general population sample, 2) a sample of employed individuals in the general population reported off sick by their employer, 3) a sample of individuals who reported off sick (unemployed, self-employed, students and others). In this thesis the employer-reported cohort was used. The target population of the cohort was all individuals between 19-64 years of age reported sick by an employer to the SSIA between the February 18 and April 15, 2008, irrespective of reasons for sick leave (all-cause sickness absence). During this period 12 543 individuals were reported sick by their employer. Of these, 51% (*n*= 6403) were registered at the SSIA after April 15 due to administrative reasons and 49% (*n*=6140) were registered within the time-frame. Those registered within the time frame were invited to participate in the study and received a postal questionnaire. Those registered after the time-frame were not invited to participate since it was important that the questionnaire was distributed as close as possible to the actual sick-leave period. Among those registered after April 15, there were a higher proportion of men, individuals on low income, highly educated and first-time sick-listed. A slight overrepresentation was also found for immigrants (129).

Postal questionnaires were distributed by Statistics Sweden at baseline (2008). Two reminders followed and the response rate was 54%. Significantly higher drop-out rates were found among persons who were young (aged 19-30 years), living alone, born outside Sweden and those reporting low yearly income (≤149 000 SEK/year). A higher drop-out rate was also found among women living in urban areas. The proportion of women (66%) and men (34%) in the final study sample was similar to that observed for sickness absence in the general population of the whole country (130).

For each participant, the annual number of sick-leave spells and the number of benefit-compensated sick-leave were collected from the Longitudinal Integrated Database for Sickness Insurance and Labour Market Research (LISA), held by Statistics Sweden.

3.2 Studies I and II

3.2.1 Design

Both studies I and II were prospective, longitudinal studies using questionnaire data from the HAP and register-based data from LISA. In study I, we investigated if self-assessed mental health problems and work capacity were determinants of time until return to work. The participants were followed until the end of 2008. In study II, we investigated mental well-being and work capacity as predictors of work participation, the year after inclusion in the HAP.

3.2.2 Participants

The cohort comprised 3310 participants. In both studies, we included individuals with only one sick-leave spell in 2008 and who stated that they were employed in the baseline questionnaire. The final study population comprised 2502 individuals. Sickness absence is dynamic in the sense that individuals move in and out of the state. In the HAP there was, by necessity, a delay between the start of the inclusion period and the date of completion of the postal questionnaire. Therefore, in study I we used a sub-sample for the analyses of the association between work capacity and return to work. The subsample included those individuals still on sick leave when responding to the questionnaire, thereby assessing work capacity in similar circumstance. The baseline demographics are shown in Table 2.

Table 2. Demographics of the cohort (n = 3310) and the study groups (n = 2502, n = 1082) at baseline in studies I and II: frequencies (n), valid proportions (%) and 95% confidence interval (95% CI)

	Whole cohort *n* = 3310		Employed, with one sick-leave period *n* = 2502 (I, II)		Currently on sick-leave* *n* = 1082 (I)	
	Men *n* = 1114 (34%) *n* (%) (95% CI)	Women *n* = 2196 (66%) *n* (%) (95% CI)	Men *n* = 856 (34%) *n* (%) (95% CI)	Women *n* = 1646 (66%) *n* (%) (95% CI)	Men *n* = 354 (33%) *n* (%) (95% CI)	Women *n* = 728 (67%) *n* (%) (95% CI)
Age groups (years):						
19-30	129 (12) (10-14)	251 (11) (10-13)	104 (12) (10-14)	169 (10) (9-12)	40 (11) (8-15)	67 (9) (7-11)
31-50	446 (40) (37-43)	1033 (47) (45-49)	346 (40) (37-44)	770 (47) (44-49)	132 (38) (32-46)	346 (48) (44-51)
51-64	539 (48) (46-51)	912 (42) (40-44)	406 (47) (44-51)	707 (43) (41-45)	182 (51) (46-57)	315(43) (40-47)
Civil status:						
Married/ cohabiting	802 (74) (71-76)	1068 (74) (73-76)	623 (74) (71-77)	1197(74) (71-76)	262 (75) (70-80)	531 (73) (70-76)
Single	289 (26) (24-29)	557 (26) (24-28)	218 (26) (23-29)	429 (26) (24-29)	86 (25) (20-30)	192 (27) (23-30)
Country of birth:						
Nordic countries	976 (88) (86-89)	2007 (91) (90-92)	755 (88) (86-90)	1511(92) (90-93)	318 (90) (86-92)	665 (91) (89-93)
Other countries	138 (12) (11-14)	189 (9) (8-10)	101 (12) (10-14)	135 (8) (7-10)	36 (10) (7-14)	63 (9) (7-11)
Education:						
University or college	227 (21) (18-23)	877 (41) (38-42)	175 (21) (18-24)	669 (41) (39-44)	66 (19) (15-24)	301 (42) (38-45)
Secondary education	532 (49) (46-52)	875 (40) (38-42)	420 (50) (46-53)	643 (40) (37-42)	171 (49) (44-55)	285 (39) (36-43)
Up to primary education	335 (30) (28-33)	414 (19) (18-21)	249 (29) (26-33)	314 (19) (18-21)	109 (32) (27-37)	135 (19) (16-22)
Occupational class:						
High-level non manual	109 (10) (8-12)	243 (11) (10-13)	91 (11) (9-13)	202 (12) (11-14)	35 (10) (7-14)	103 (14) (12-17)
Medium/low non manual	233 (22) (19-24)	906 (42) (40-44)	187 (22) (20-25)	682 (42) (40-44)	73 (219) (17-26)	299 (41) (38-45)
Skilled/un-skilled/ Self-employed	744 (65) (66-71)	1020 (47) (45-49)	563 (67) (64-70)	745 (46) (43-48)	239 (69) (64-74)	321 (44) (41-48)
Hours worked:						
Full time	965 (90) (88-92)	1336 (63) (61-65)	765 (92) (89-93)	1025(64) (61-66)	300 (88) (84-91)	432 (61) (57-64)
Part time	105 (10) (8-12)	778 (37) (35-39)	71 (8) (7-11)	584 (35) (34-39)	42 (12) (9-16)	276 (39) (36-43)

*still sick-listed at the time when responding the HAP questionnaire

3.2.3 Outcome

Time until return to work was measured by estimating the number of sick-leave days for which sickness benefit was paid in 2008. The total number of benefit-compensated sick-leave days in 2008 was divided into three groups: ≤14 days ($n = 996$), 15–90 days ($n = 913$) and ≥91 days ($n = 593$). Because all participants had an initial 14-day period of sick pay from the employer, the total number of actual sick-leave days was estimated by adding 14 days per person. Thus, the final definitions of return to work were *early* (≤28 days), *medium late* (29–104 days) and *late* (≥105 days). In the analysis of the subpopulation currently on sick leave, time until return to work was treated as a binary outcome: early/medium late (≤104 days) versus late return to work (≥105 days). This dichotomization was done due to the smaller number of individuals.

Future work participation was measured by sickness absence in 2009. The annual number of individuals' benefit-compensated sick-leave days was obtained from LISA, and dichotomized into *full work participation* (0 days with sickness benefits in 2009) and limited work participation (at least one or more days with sickness benefit in 2009). Limited work participation includes 14 days of employer-paid sick-leave, thus limited work participation means at least 15 days of sickness absence.

3.2.4 Independent variables

The independent variables investigated in studies I and II were self-assessed mental well-being and work capacity; self-reported persistent mental illness was also investigated in study I. Data were retrieved from the baseline questionnaire in the HAP. Mental well-being and persistent mental illness was chosen as indicators of mental health problems.

Persistent mental illness was measured by a question asking whether the respondent had any persistent disease, illness or disability, followed by a checklist of disease categories (see Appendix). Those who ticked 'mental illness' were considered to have persistent mental illness. This question has been used extensively in different public health surveys in Sweden, and shown to have good validity and reliability (131, 132).

WHO (Ten) Well-Being Index (133) is an instrument used in several population-based studies in Sweden (94, 134). The validity and reliability have been tested (133) and the Swedish translation has been validated (135).

The index measures mental well-being the previous week and includes ten items covering four dimensions: depression, anxiety, energy and positive well-being (see Appendix). Response alternatives to each item are always, often, sometimes and never. There is a maximum score of 30 points; higher scores indicate better mental well-being. The cut-off used in this study was based on the lower quartile in all three cohorts available in the HAP. Because the population included in this study consists of sick-listed individuals the distribution might be skewed, and it is an advantage that the cut-off was based on all three cohorts. The cut-off was chosen in order to capture enough exposure differences, without having to compare the extremes. The index was dichotomized into low mental well-being (scores ≤12) and high mental well-being (scores ≥13).

The WHO (Ten) Well-Being Index, included 198 individuals (7.9 % of the study population) with missing values for at least one item. In both study I and II those who had missing values on all items (n=5) were excluded whereas missing data for the remaining individuals (n=193) were replaced by mode imputation at each item in order to increase power (136). The proportion reporting high or low mental well-being did not change either in the population n=2502 or in the sub-population n=1082.

Work capacity was measured by the question *How do you rate your current work capacity*, *with respect to:* followed by four items*: knowledge, mental, collaborative* and *physical demands required of the job?* Each item was assessed separately (see Appendix). The items mental and physical demands were extracted from the Work Ability Index (WAI) (137). Psychometric evaluation of the WAI has revealed that these two items correlate highly with the total index (138). The item knowledge demands was derived from the Copenhagen Psychosocial Questionnaire (139). The item collaborative demands was developed by the research group; it was found to be an important constituent of work functioning in earlier research within the group (140, 141). Response alternatives for each item were very good, rather good, moderate, rather poor and very poor. Response alternatives were dichotomized into high work capacity (very good, rather good) and low work capacity (moderate, rather poor, very poor). Dichotomisation was done mainly to attain analytical power in sub groups, however used earlier (142).

3.2.5 Covariates

Sociodemographics (studies I and II)

Data on gender, age and country of birth were obtained from national registers. Age was categorized into three groups: 19–30, 31–50 and 51–64 years. The mean age was 47 years and the median age was 48 years. The categorization was done to obtain groups of equal size that were large enough to be able to do meaningful analyses. Country of birth was grouped into born in the Nordic countries and born outside the Nordic countries. Data on educational level and marital status were obtained from the questionnaire. Educational level was categorized as up to primary (9 years or less), upper secondary (10–12 years) and higher education (>12 years). Data on marital status was grouped into married/cohabiting or single.

Work-related factors (studies I and II)

Socioeconomic status (SES) was obtained from national registers and based on occupation (143). Each person was assigned to one of three groups: high non-manual, intermediate/low non- manual and skilled/unskilled manual/self-employed. Data on hours worked were obtained from the questionnaire and categorized into full-time and part-time (at least 15 hours/week).

Sickness absence (studies I and II)

Data on sickness absence was obtained from national registers. In study I previous sick leave was defined as having at least one sick-leave day with benefit from the National Insurance Agency during the year before inclusion (2007). This implies a period of at least 15 days of sick leave according to the Swedish insurance system, because shorter periods are registered by the employers only.

In study II, sickness absence in 2007 was used as a continuous variable. Sickness absence in 2008 was considered to be in the pathway between the independent variables and the outcome and was not adjusted for in study II in order to avoid over-adjustment (144, 145).

Alcohol consumption (studies I and II)

In study I, a separate analysis was done between mental health problems and alcohol problems, due to their high comorbidity. As an indicator of harmful alcohol habits, the Swedish version of the AUDIT (Alcohol Use Disorders

Identification Test), the WHO's recommended questionnaire was used (146). Significant associations were found between AUDIT scores, persistent mental illness and low mental well-being. However, the AUDIT scores were not significantly associated with return to work in any of the stratification groups: age, gender, persistent mental illness and low mental well-being. Harmful alcohol habits (AUDIT scores) were thus not included in any further analysis in study 1. In study II the AUDIT scores were tested for association with the outcome; no association was found.

General self-efficacy (study II)

The General Self-Efficacy (GSE) scale comprises ten items evaluating an individual's belief to succeed in specific situations (147). GSE has shown high validity and reliability across cultures (148) and the Swedish translation has been validated (149). GSE correlated moderately with mental well-being $r = 0.49$ and the work capacity items, ranging from $r = 0.21$ (physical work capacity) to $r = 0.37$ (mental work capacity). All Spearman correlations were significant at the 0.01 level; original variables without dichotomization were used.

Persistent disease, illness or disability (study II)

Persistent illnesses were elaborated from a question asking for *any persistent disease, illness or disability*, followed by a checklist of disease categories (see Appendix) (131, 132). The question was categorized into four groups: (1) those who did not report a persistent disease, illness or disability, (2) those who reported mental illness only, (3) those who reported other illnesses but no mental illness, and (4) those who reported both mental illness and at least one other illness. Of these, 22%, 69%, 27% and 74% respectively reported low mental well-being.

Common symptoms (study II)

Pain, fatigue and problems with concentration are common symptoms in depressive disorders and are associated with slow treatment response (150-153). Moreover, occupational functioning has been shown to be associated with residual symptoms (154). In the baseline questionnaire a modified version of the inventory 'Common Symptoms in the General Population of Women' was included (155). The inventory asked '*How often have you had the following symptoms during the past 12 months'* followed by twelve different common symptoms. Of these, we used tiredness, neck pain and/or shoulder pain and difficulty concentrating. There were four response

alternatives: ‘nearly every day’, ‘now and again during the week’, ‘now and again during the month’, ‘almost never or never’. The items were dichotomized into seldom having the symptom (now and again during the month, almost never or never) and often having the symptom in question (nearly every day, now and again during the week). The correlation with mental well-being was moderately (fatigue r = 0.49, pain r = 0.25, concentration difficulties r = 0.51). The correlation with work capacity was low; the largest correlations were found between concentration difficulties and mental work capacity (r = 0.42), fatigue and mental work capacity (r = 0.32), pain and physical work capacity (r = 0.26) and concentration difficulties and collaborative work capacity (r = 0.28). All Spearman correlation coefficients were significant at the 0.01 level; original variables without dichotomization were used.

3.2.6 Statistical methods

In studies I and II, IBM SPSS version 20 was used for all statistical analyses.

Study I

Descriptive statistics were used to outline the distribution of early, medium and late return to work by gender, age, marital status, educational level, SES, hours worked, previous sick leave, persistent illness and low mental well-being. Multinomial logistic regression analyses, as well as univariate and multivariable analyses were performed (n=2502) with the dependent variable at three levels: late return to work, medium return to work and early return to work. Crude and adjusted odds ratios (OR) with 95% confidence intervals (CI) were calculated. The ORs with 95% CIs represent the odds for late return to work and medium late return to work among the exposed group compared with the odds among the unexposed group (early return to work).

Binary logistic regressions was performed (n=1082) to estimate crude and adjusted ORs with 95% CIs for late return to work (as a binary outcome) in relation to persistent mental illness and mental well-being respectively. No persistent illness and high mental well-being were used as reference categories. In model 1, adjustments were made for age and gender. In models 2–5, adjustments were made for age, gender and each work capacity dimension at a time. In model 6, adjustments were made for all work capacity variables, gender and age.

Binary logistic regressions was also performed (n=1082) to estimate crude and adjusted ORs with 95% CIs for late return to work compared with early/medium late return to work in relation to knowledge, mental, physical and collaborative work capacity among the subpopulation of those currently off sick. The group reporting high work capacity was used as the reference category. In model 1, adjustments were made for gender and age. In model 2, adjustments were made for age, gender and persisting mental illness. In model 3 all work capacity variables were introduced simultaneously and adjustments were made for all variables included in model 2. In models 4 and 5, the analyses were repeated as for model 2 and 3, but with low mental well-being instead of persisting mental illness.

In all the adjusted analyses, gender was introduced in the models despite not being significantly associated with outcome. That was done because of the known strong relation between gender and both mental health problems and sickness absence.

Study II

Descriptive statistics were used to characterize the distribution of full and limited work participation by gender, age, country of birth, marital status, educational level, SES, hours worked, harmful alcohol habits, previous sick leave, persistent illnesses, common symptoms (fatigue, neck/shoulder pain, concentration difficulties), general self-efficacy, low mental well-being and work capacity (four dimensions). Binary regression analysis was performed to estimate crude and adjusted ORs with 95% CIs for the probability of limited work participation compared with full work participation (0 days with sickness benefits in 2009) in relation to independent variables. Age, previous sickness absence and general self-efficacy were entered as continuous variables. The other covariates were used as described above under the presentation of covariates. High mental well-being and high work capacity was used as reference categories. All independent variables with a crude association with limited work participation were adjusted for age and gender. In model 1, adjustments were made for age, gender and previous sickness absence. In model 2, adjustments were made for age, gender and GSE. In model 3, adjustments were made for age, gender and persistent illnesses. In model 4, adjustments were made for common symptoms. In model 5, adjustments were made for all covariates in models 1–4.

Sensitivity analyses

To test for the possible effect of sickness compensation in 2008, final models were rerun after exclusion of the subgroup with sickness compensation in 2008 (*n*=163). Similarly, analyses were repeated after exclusion of those who were aged 64 years in 2008 (*n*=69). These persons could have retired and received the old age pension in 2009 and that could have affected study results.

3.3 Studies III and IV

3.3.1 Design

Studies III and IV were explorative qualitative studies with the aim of exploring a phenomenon that has not been well described to date. In study III, a phenomenological design was used to capture the content and meaning of a real-life phenomenon. In phenomenology the life-world is an important point of departure, and is considered to be the foundation for human activities, experiences and perceptions (156, 157). Using the phenomenological approach, the phenomenon of capacity to work while depressed and anxious was conceptualized to make it possible to understand in a theoretical and comprehensible manner (156-158). In study IV, the professionals' experience-based understanding of capacity to work was explored using an inductive qualitative approach (159-161).

In both studies, we used the focus groups method for data collection (162-164). Beacuse capacity to work was regarded as an un-reflected phenomenon, not yet fully delimited, defined and verbalized, we believed that the participants' common reasoning among themselves would give more credible data than individual interviews. The creation and use of a supportive environment were therefore important. The interview guides were developed with both focus group and phenomenological recommendations in mind.

3.3.2 Settings and participants

Variation in participants' illness experiences was important in study III, and individuals with differing types and severity of symptoms were invited to take part in the study. The participants were required to be of working age

(18–65 years) and currently working at least part-time within the regular job market. Persons working in the context of job training, rehabilitation, supported employment, or subsidized employment were excluded**.** Due to the focus group design, individuals who did not speak Swedish were excluded. In study IV, we aimed for variation in medical service facilities, professions and severity of disorder by inviting participants from different medical settings.

Recruitment

The potential participants were recruited in two ways in study III. Staff in primary health care, psychiatric out-patient care and occupational health care distributed written information about the study to patients with one or more of the following clinical diagnoses, in accordance with the International Classification of Diagnosis: F32 depressive episode, F34 persistent mood [affective] disorders, F38 other mood [affective] disorders, F39 mood [affective] disorder, F41 other anxiety disorders, F43.8 other reactions to severe stress (122).

To reach individuals with no contact with health care, oral and written information was provided during 12 public lectures held at public health information centres. In this non-clinical group there was no formal screening procedure and a clinical diagnosis was not a requirement for study participation; self-reports of symptoms including worry, fatigue or feeling blue were used instead.

In study IV, contact was made with eight eligible heads of units in primary health care, psychiatric out-patient care and occupational health care. The heads distributed written information about the study to employees, which invited health care professionals experienced in treating patients with depression- and anxiety disorders to take part in the study. The information included a description of the disorders according to the International Classification of Diagnosis: F32 depressive episode, F34 persistent mood [affective] disorders, F38 other mood [affective] disorders, F39 mood [affective] disorder, F41 other anxiety disorders, F43.8 other reactions to severe stress (122).

Participants

All potential participants in study III who submitted an application of interest ($n = 32$) were contacted. Eleven persons were excluded; the most common reason being that they were not currently employed within the regular job market. One declined further participation. In all, 20 persons were invited to

participate. Two of these cancelled and one did not show up at the focus group, resulting in a total of 17 participants.

Interested participants in study IV were asked to contact the first author. Twenty-four participants were invited and 21 participants took part in the study. The non-participating professionals' ($n = 3$) announced inconvenience or illness at the time. Two focus groups were held with health care professionals within primary health care: one with professionals within psychiatric out-patient care and one with professionals in occupational health care.

Focus group procedure

A pilot study was undertaken by the author of this thesis (MB) in study III to test the focus group method (163). No corrections were made. In study IV, a pre-study was conducted with health care professionals in a psychiatric out-patient clinic by both MB and the second author in study IV (JL). In the pre-study, the participants suggested that an explicit invitation to refer to patient cases would enhance the method. This proposal was explicitly stated to study participants in the invitation letter and orally at the focus group. In both studies the focus groups were facilitated by two moderators. MB was the moderator in both studies III and IV. MB is an occupational therapist with long clinical experience in psychiatry. The second author in study III (ELP) was co-moderator in that study. ELP is an occupational therapist experienced in primary care and the focus group method. In study IV, JL was co-moderator; JL is a behavioural scientist experienced in interview techniques and qualitative methodology. The moderator ensured that focus was retained, and that everyone took part in the discussion. In study IV, the co-moderator made notes during the session and at the end he encouraged the participants to reflect further upon ambiguities expressed that needed further explanations. The focus groups were audio-recorded and recordings were professionally transcribed by a transcribing firm. The transcriptions were compared with the audio-records to ensure accuracy of transcriptions, and any mistakes were corrected.

In study III, four focus groups were conducted between June and December 2010 with 3–6 study participants per group. Participants received a confirmation letter (date, time and place) and a list of questions to reflect on before the focus group meeting. 1. *What, in your opinion, characterizes a good capacity to work?* 2. *What do you think is part of a good capacity to work?* 3. *How is your capacity to work affected by problems such as worry, fatigue, sadness, depression or anxiety?* 4. *What does it mean to you that*

your capacity to work is affected by problems such as worry, fatigue, sadness, depression or anxiety? All sessions were held in a centrally located research facility in the late afternoons. The participants were offered coffee and sandwiches on arrival. Only travel expenses were compensated; no other incentives were offered. The focus groups lasted for 83–113 minutes. Probes were used ("*How does this affect your capacity to work*?").

Four focus groups were conducted in study IV. In preparation, the two main questions were included in the invitation letter. 1. *How is capacity to work affected by depression and anxiety disorders?* 2. *What does it mean for individuals that their capacity to work is affected by depression- and anxiety disorders?* The focus groups with 5–6 participants per group were conducted between September 2011 and January 2012 during work hours. No incentives were offered, but a small gift of appreciation was given. To make it convenient for participants, the focus group took place at the clinic. The focus groups lasted for 80–98 minutes. Probes were used to get detailed descriptions of the professionals' understanding of capacity to work.

3.3.3 Data analyses

In studies III and IV the analyses began after all focus groups had been conducted within each study. The analyses started with a thorough reading of each transcript to get a sense of the whole, MB and GÖ (the third author) in study III; by MB in study IV. Both studies strived for credibility of the findings by guidance from the COREQ checklist (165). Reflexive notes and a field diary were kept by MB throughout the process for each study.

Study III

Data were analysed in accordance with the reflective life-world approach as described by Dahlberg et al (156, 157). To control and bridle researchers' pre-understanding reflective notes were made throughout the research process. Furthermore, the moderator's actions were analysed through reading the transcripts after the first two focus groups to check for actions made due to pre-understanding. Data from each focus group were initially treated separately. Preliminary data analysis was done by MB and GÖ who independently identified text segments related to capacity to work and these preliminary analyses were compared. These text segments were treated as meaning units and clustered. At this point, data from the individual focus groups were merged. Clusters of meaning were configured and reconfigured through an iterative process and emerging themes were identified. During this

process, first drafts for clusters of meaning, later drafts with themes and a wealth of descriptions and quotes were worked and re-worked, moving from concreteness to a more abstract level. A structure was then captured and constituents were distinguished. At this point the transcripts were re-read to ensure that the results were grounded in the data. The essence was then derived and made explicit from the structure and the constituents. The essence, in phenomenology, is the condensed description of the phenomenon, further illuminated by its constituents.

The draft of the clusters of meaning was critically reviewed by all co-authors. Later the drafts of the themes and subthemes, and then the constituents and the essence, were critically reviewed by all co-authors to enhance the credibility of the findings.

Study IV

The data were analysed using inductive content analysis (159-161). Meaning units were derived from the data and identified by MB. The accuracy of excluded data was ensured by discussion between the two moderators. The content of the meaning units was condensed to shorten the text while still preserving the core meaning. To avoid any potential violation of interpretations, labelling of the meaning units was excluded because of the explorative aim of the study. All meaning units were grouped and re-grouped into sub-categories and categories by comparing similarities and differences. A preliminary result was presented at a seminar with experts in the field. From that seminar, the data were re-worked and collapsed into two content areas. The content areas served as a tool to preserve a "tense" that seemed to exist in the data. These content areas were dropped out in the final stages. To ensure credibility three authors read all transcripts (MB, JL, GA). Furthermore, all co-authors took part in the analysis by continuously reading and discussing drafts of the evolving result written with a wealth of descriptions and quotes, and by scrutinizing the categories and sub-categories. To validate the results, both the preliminary results and more final results were presented at research seminars with experts. Comments were thoroughly considered.

3.4 Ethical considerations

The studies were performed in accordance with the World Medical Association Declaration of Helsinki – Ethical Principles or Medical Research

Involving Human Subjects (166). The register and questionnaire-based parts of the prospective studies (Dnr: 039-08) and the qualitative studies (Dnr: 060-10) was approved by the Regional Ethical Review Board in Gothenburg, Sweden. Three ethical principles guided the performance and the studies and are discussed briefly below.

Principle of autonomy

In both the HAP and the qualitative studies potential participants received written information about the study aim and their right to withdraw from a study at any time. Participation was based on informed consent. In both the qualitative studies, the participants also signed an informed consent.

In the HAP, Statistics Sweden kept the identification key; confidentiality was ensured by this procedure. Most participants in study III were recruited through health care gate-keepers. However, no information about any participants was given to these gatekeepers. In the focus groups, confidentiality was not possible and the participants were asked not to disclose other participant's statements. In study III specifically, the participants only introduced themselves by their first name and type of work. In that study the participants' occupations, although interesting information in terms of generalization of the results, were not described to safe-guard anonymity. The recordings, the transcripts and the identification key are kept under lock and key at the Unit of Social Medicine, University of Gothenburg (studies III and IV).

Principle of beneficence

The beneficence of the qualitative studies was mainly theoretical, gaining new knowledge, which also could have practical importance. However, to develop such knowledge empirical data from people's experiences is needed. To tell others about personal experiences is sensitive and might lead to too much personal disclosure. To safe-guard against this, the moderator supported any participant who was being too personal. In both studies III and IV the discussions, were kept within a level whereby the climate encouraged individuals to freely say what they wanted to say.

For the participants, reflexive conversations and discussions through focus groups are considered as mainly beneficial (167). However, the method can lead to contradictory opinions among participants, which for an individual participant might be perceived as a conflict. Such a situation could have brought about a potential harm. For the studies it was important to allow for contradictions and to promote fairness. The moderator encouraged respectful discussion allowing everyone talks about important experiences and apprehensions. The moderators' did not perceive that any participants experienced harm when contradictions occurred.

An ethical dilemma was identified with regard to participants in study III, especially those from the public lectures. There was a possibility that through the discussions, the latter group would recognize a disorder in themselves. The dilemma was handled by informing the participants that they could call the moderator if any questions arose after the focus group. Participants who did contact us would be guided to get in touch with their health care centre or provided with information on where to turn if they did not have any current health care contact. No participants contacted us. Participants in the HAP study were invited to contact the research board in case of any eventual questions.

Principle of justice

Due to stigma as well as symptoms difficulties, individuals with mental health problems might perceive it more difficult to participate in a focus group study, and maybe even a questionnaire study. However, from an ethical point of view it is important and relevant that individuals with depression- and anxiety disorders are heard. Work capacity related to depression and anxiety is rarely investigated and it is important to develop the knowledge. In the qualitative studies, the subject had to be elucidated by individuals with the disorders as well as those with self-perceived symptoms only. In the quantitative studies, to contact sick-listed people through the SSIA's registers (HAP), a general population approach compared with a clinical sample, gives anyone who is interested the opportunity to participate.

In a group interview there is a risk of inequalities and feelings of sub-ordination, for example due to sex or age. In study IV specifically, the different professions might have introduced a disadvantageous hierarchy. It was the task of the moderator to create a non-hierarchical climate where everyone was treated fairly and all statements were equally worthwhile.

4 RESULTS

4.1 Self-reported mental health problems and work capacity

In the study population (n = 2502), 29% reported low mental well-being and 9% reported a persistent mental illness. Of those reporting low mental well-being, 23% reported a persistent mental illness. Of those reporting a persistent mental illness a third reported high mental well-being.

Low work capacity in relation to knowledge demands was reported by 10%, low mental work capacity by 23%, low collaborative work capacity by 15% and low physical work capacity by 32%. Among individuals still sick-listed (n = 1082), the corresponding figures were 16%, 34%, 22% and 44%. Distribution of high and low work capacity within the different persistent illnesses is shown in Table 3.

Table 3. Distribution (%) with 95% CI of high and low mental well-being and work capacity within persistent illness groups (n = 2502) (valid proportions, CI calculated for columns)

	No illnesses	Mental illness only	Other illnesses only	Comorbid mental and other illness
	n = 786 % (95% CI)	n = 101 % (95% CI)	n = 1435 % (95% CI)	n = 130 % (95% CI)
Mental well-being:				
High	78 (75–81)	31 (23–41)	73 (70–75)	26 (20–34)
Low	22 (19–25)	69 (59–77)	27 (25–30)	74 (65–81)
Work capacity in relation to work demands:				
Knowledge				
High	91 (88–92)	74 (64–81)	92 (90–93)	75 (66–82)
Low	9 (8–12)	26 (19–36)	8 (7–10)	25 (18–24)
Mental				
High	82 (79–82)	39 (30–49)	80 (78–82)	39 (31–48)
Low	18 (16–21)	61 (57–70)	20 (18–22)	61 (52–69)
Collaborative				
High	89 (86–91)	62 (52–71)	87 (86–89)	60 (51–68)
Low	11 (9–14)	38 (29–48)	13 (11–14)	40 (32–49)
Physical				
High	79 (76–82)	63 (53–72)	64 (62–66)	48 (39–57)
Low	21 (18–24)	37 (29–48)	36 (33–38)	52 (43–61)

4.2 Study I (return to work)

No significant differences in return to work were found between men and women. Tables are presented in paper I.

Mental health problems as predictors of return to work

Self-reported persistent mental illness and low mental well-being were significantly associated with late return to work but not with medium late return to work. After adjustments for covariates, associations between late return to work and persistent mental illness (OR 2.97, 95% CI 2.10–4.20) and low mental well-being (OR 2.89, 95% CI 2.31–3.62) remained significant. No significant associations were found for the mental health indicators and medium late return to work in the adjusted models.

Both mental health indicators had significant association with late return to work in the sub population (n = 1082). For persistent mental illness adjusted for mental work capacity the association no longer remained significant. When adjusted for collaborative work capacity, only a weak association with outcome was found. Adjusted for knowledge and physical work capacity the odds did not change and remained significant. When all four dimensions of capacity to work were included in the final model, the association between persistent mental illness and late return to work became non-significant. For mental well-being, the association with late return to work remained significant in model 2-5, adjusted for each work capacity dimension separately. Also in the final model, the OR for late return to work remained significant (OR 1.93, 95% CI 1.46–2.55).

Work capacity as predictor of return to work

In the sub sample (n = 1082), those rating a low work capacity had a higher odds for late return to work compared with those with high work capacity. Adjusted for age, gender and persistent mental illness, all work capacity variables were significantly associated with late return to work, knowledge (OR 1.91 95% CI 1.33-2.75), mental (OR 1.79 95% CI 1.35-2.39), collaborative (OR 1.90 95% CI 1.37-2.62), and physical (OR 1.50 95% CI 1.17-1.93). The same was found in the model with adjustments for age, gender and mental well-being, knowledge (OR 1.75 95% CI 1.21-2.53), mental (OR 1.52 95% CI 1.14-2.04), collaborative (OR 1.71 95% CI 1.23-2.36) and physical (OR 1.44 95% CI 1.12-1.86). But, in the final model all dimensions of work capacity were included, as well as the separate mental health indicators, and no dimension remained significant.

4.3 Study II (work participation)

Women had increased odds of limited work participation (OR 1.30, 95% CI 1.07-1.58) compared with men. Tables are presented in paper II.

Mental well-being as predictor of work participation

Low mental well-being was reported by 29%. Among men with low mental well-being 34% had limited work participation; corresponding figures for women were 36%. Mental well-being adjusted for age and gender was significantly associated with increased odds (OR 1.88, 95% CI 1.53-2.27) for limited work participation. In models 1-4, adjusted for age, gender and each of the covariates at the time, low mental well-being in all models remained associated with limited work participation. In model 5, with all significant covariates entered, low mental well-being still showed a significant association with limited work participation OR (1.30, 95% CI 1.02-1.65).

Sensitivity analyses excluding those with part time sickness compensation (*n*=163) increased the odds (OR 1.35, 95% CI 1.05–1.75),), but after the exclusion of those aged 64 years (*n*=69) the odds for limited work participation decreased (OR 1.28, 95% CI 1.00-1.63).

Work capacity as predictor of work participation

All work capacity variables adjusted for age and gender showed a significant association with increased odds of limited work participation, knowledge (OR 2.0, 95% CI 1.52-2.64), mental (OR 1.57, 95% CI 1.28-1.94), collaborative (OR 1.81, 95% CI 1.43-2.31), physical (OR 1.87, 95% CI 1.54-2.26). The work capacity variables related to knowledge, collaborative and physical demands at work all remained significant associated with limited work participation in model 1-4. Mental work capacity was significantly associated with limited work participation in model 1-3. In model 4, adjusted for common symptoms, the association between mental work capacity and limited work participation was non-significant. In the final model low work capacity related to knowledge demands showed the highest odds for limited work participation (OR 1.56, 95% CI 1.13-2.13) followed by low physical work capacity (OR 1.50, 95% CI 1.22-1.86) and low collaborative work capacity (OR 1.36, 95% CI 1.03-1.79).

In the sensitivity analyses excluding those with part-time sickness compensation, the odds for limited work participation increased even more for those with low knowledge work capacity (OR 1.72, 95% CI 1.24-2.40)

but for those with low physical work capacity, the odds decreased (OR 1.46, 95% CI 1.17-1.83); the other odds did not change. The sensitivity analyses excluding those aged 64 years in the logistic regression showed that those with low work capacity related to knowledge demands increased the odds for limited work participation (OR 1.60, 95% CI 1.16-2.19); the other odds did not change.

4.4 Study III (capacity to work)

The essence of the phenomenon capacity to work while depressed and anxious is experienced as a loss of familiarity with one's work performance, one's behaviours, and emotional and physical reactions. It is like being a guest in one's own working life. Body and mind are experienced as disconnected and work performance is possible by means of a working facade and great effort. To work is a challenging act accompanied by feelings of not being "good enough". Decreased capacity to work is particularly exposed in human encounters. Capacity to work fluctuates and new work practices are developed to monitor personal achievements. All this consumes energy, necessitating withdrawal from leisure and social activities. Good work performance normally generate job satisfaction and elicits gratification from others, but these daily moments of "refuelling" are absent, making work even more difficult. The reduced capacity to work is experienced as causing a sense of remoteness in the work community and feelings of loneliness at the workplace.

The essence is constituted by nine constituents which further elucidates the essence. The constituents related to difficulties doing work tasks and handling demands of time and pace. Capacity to work was highly affected by physical and psychological reactions. The individuals changed their work behaviours and social interactions with other people at work were difficult. The individuals were able to do ordinary duties at ordinary work place, but work tasks and social events located elsewhere, a kind of extended work place, were almost impossible to perform, and some did not. Social activities at work such as coffee breaks with co-workers were also difficult or avoided. All this caused a feeling of unfamiliarity and this unfamiliarity made it difficult to foreseen one's own reactions and behaviours, working with constant feelings of uncertainty. The decreased capacity to work disrupted the work place order and was perceived as putting an extra burden on work mates. Capacity to work emerged as being related to a sense of belonging to the work group, and support from the work place was essential. The reduced capacity was pointed out as invisible and this invisibility was considered

troublesome by participants. The participants stressed the need for people such as managers, co-workers, physicians and social insurance officers to understand the content of reduced capacity to work and its consequences.

4.5 Study IV (health care professionals)

Health care professionals understanding of capacity to work in individuals with depression and anxiety disorders resulted in six categories. (1) The professionals experienced that the patients' performance at work changed from being familiar to unrecognizable. The patients seemed to distrust their own work performance and the uncertainty made them double-check everything. (2) The patients were described as having difficulties with time management, dealing with daily work demands and socializing. Furthermore, were management of emotions at the work place described as problematic and work capacity was fragmented by anxiety attacks. (3) The professionals perceived that the patients had difficulties letting go of work and how this hampered patients' willingness for disclosure in the work place. To maintain their work practice the patients' use of a facade was described. (4) Patients' life outside paid work emerged as part of capacity to work. To be able to continue working, the professionals perceived that the patients seemed to let their life outside work crumble and had difficulties maintaining household duties or leisure activities. The patients reduced capacity at home, although still working, was problematic for the professionals since that did not allow for sick-listing of patients. (5) The professionals understood capacity to work to be part of a greater whole at the work place, comprehended as a work community. Patients were expected to take part in that work community, which, according to the professionals, was next to impossible for individuals with depression and anxiety disorders. When work place expectations such as socializing or fulfilling one's duties were not accomplished by patients, the professionals found that the work places and employers hampered patients' work participation. (6) Although findings with regard to capacity to work were described, it also emerged as an elusive concept not easily comprehended or defined by the health care professionals. The absence of a specific terminology to describe work capacity was obvious; instead, capacity to work was described by symptoms and functions. Overall, the capacity to work was expressed to be affected in similar ways in women and men.

5 DISCUSSION

In this thesis, work capacity and mental health problems have been investigated with both quantitative and qualitative methods. Figure 1 provides a schematic overview of the entire project and its individual studies (I-IV).

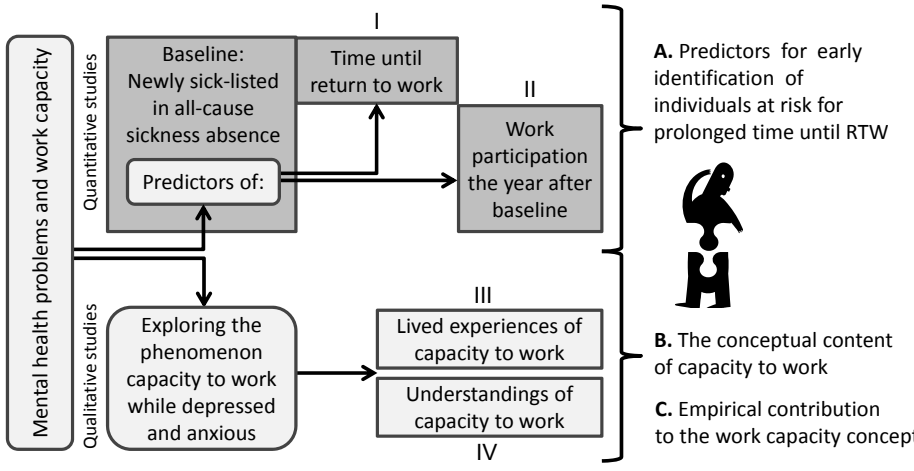

Figure 1. Overview of studies I-IV in the thesis Work capacity and mental health – the phenomena and their importance in return to work (RTW).

Studies I and II demonstrated that work capacity and mental health problems were important predictors of return to work and work participation. In studies III and IV the combination of the two phenomena, capacity to work while depressed and anxious, was found to be a complex phenomenon. In these studies, work capacity was described to be decreased in many ways, implying that further study of work capacity could bring important new ideas to sickness absence research. The findings are discussed in sections 5.1 and 5.2. Thereafter, the methodological considerations follow.

5.1 Predictors of return to work and work participation

The association between mental health problems and return to work and work participation is discussed first. Followed by the association between work capacity and return to work and work participation.

5.1.1 Main findings

Mental health problems as a predictor of return to work and work participation

Among individuals off sick in all-cause sickness absence, we found that mental health problems measured as persistent mental illness and low mental well-being predicted late return to work. The association between low mental well-being and late return to work remained significant after adjustment for gender, age and four work capacity dimensions (knowledge, mental, collaborative and physical demands at work).

We also found low mental well-being to predict limited work participation in a follow-up study. The association between low mental well-being and limited work participation remained significant after adjustment for age, gender, previous sickness absence, general self-efficacy, persistent illnesses and common symptoms (fatigue, neck/shoulder pain and concentration difficulties).

Self-assessed work capacity as a predictor of return to work and work participation

Among individuals with low work capacity in relation to knowledge, mental, collaborative, and physical demands at work, we found a significant association with late return to work adjusted for gender and age, as well as persistent mental illness and mental well-being respectively. However, no dimension remained significantly associated with late return to work after adjustment for gender, age and the other three work capacity dimensions as well as persistent mental illness and mental well-being respectively.

All four dimensions of low work capacity were significantly associated with limited work participation. Low work capacity related to knowledge,

collaborative and physical demands at work remained significantly associated with limited work participation, after adjustment for gender, age, previous sickness absence, general self-efficacy, persistent illnesses and common symptoms.

5.1.2 Mental health problems and their association with return to work and work participation

It was quite surprising that low mental well-being had such a strong association with return to work. The strong association of both persistent mental illness and low mental well-being with late return to work corroborates several other studies in which mental health problems have been associated with a pro-longed time to return to work (5, 88, 89, 101). Our study sample included all-cause sickness absence and it is well known that comorbidity of mental health problems and other disorders is common, but mental health problems are often not identified (32, 33, 86). It is possible that the WHO (Ten) Well-Being Index has captured such unidentified comorbidity.

The weak but still significant association with work participation was rather unexpected since mental health problems have also been found to be associated with decreased future work participation (90, 112, 116). The WHO (Ten) Well-Being Index has been found to identify psychiatric disorders (168), therefore a stronger association could have been expected. The weak association with work participation (II) might be explained by the fact that The WHO (Ten) Well-Being Index most likely captures mental health problems that by nature are more episodic and of shorter duration, such as CMD. These disorders can be expected to have remitted during follow-up. However, an English population-based cohort study of employed people found that subthreshold symptoms of CMD were also associated with >14 days off work in the 18-month follow-up (26). That study did not adjust for any ill-health confounders related to mental health problems specifically, apart from alcohol consumption, drug use, baseline psychiatric treatment and physical complaints. Therefore, another possible explanation might be that the adjustment for both persistent mental illness and common symptoms related to mental health problems introduced over-adjustment, meaning that we used covariates of possible over-lapping constructs as the well-being index.

Low mental well-being, as measured in this study, reflects well-being in the previous week. However, the well-being assessment might also be a result of the sickness absence (124). In this study some individuals (*n*=1082) answered the questionnaire while they were still off sick. It is possible that being sick-listed could trigger feelings of low mental well-being (124). Irrespective of whether low mental well-being was triggered by sickness absence or independent from sickness absence, it still seems important as a predictor of return to work and work participation.

Subjective well-being has received much attention recently from the World Health Organization (WHO) and the OECD (169, 170). This seems to reflect the up-coming interest and the importance of the measure. Together with our findings, it suggests that occupational health research as well the health care could gain new knowledge from implementing the concept. This suggestion is supported by a recent Swedish population-based study showing that even very mild psychological distress measured by the General Health Questionnaire had a hazard ratio of 1.7 for a disability pension due to somatic diagnoses and a hazard ratio of 2.2 for a disability pension due to psychiatric diagnoses 5 years later (171).

5.1.3 Work capacity and the association with return to work and work participation

Surprisingly few of the individuals off sick (*n*=1082) reported low work capacity, considering that decreased work capacity is a pre-requisite for sickness absence benefits. This finding differs from Reiso et al (2000) who found that 89% of newly sick-listed participants rated their work capacity as low (172). Also Wåhlin-Norgren et al (2011) found higher proportions (70%) of low work capacity in their sample of both working and sick-listed individuals, (173). The difference might be explained by the use of different type of samples. We also found that low work capacity in all dimensions was more frequently reported in the mental illness group and the comorbid group (mental and other illnesses). This result corroborates several other studies that have found that work capacity is affected more in individuals with mental disorders compared with other disorders (44, 63, 173).

All dimensions of work capacity predicted return to work and all, except mental work capacity, predicted limited work participation. To our knowledge, only three other studies have used work capacity measures as predictors of return to work, all using a single question: two in clinical

samples in primary health care (106, 107) and one specifically in patients with cancer (108). Wåhlin et al (2012) found that better work ability predicted return to work within 3 months in individuals with musculoskeletal disorders but not in those with mental disorders (107). Both Reiso et al (2001) and De Boer et al (2008) found that low work capacity predicted a pro-longed time until return to work (106, 108). These results corroborate our findings. Work capacity measures have more commonly been used in working populations to predict sickness absence. The result in the work participation study (II) is in line with these studies, which have found that decreased work capacity is associated with future sickness absence (174-177). Similarly, our result relates to a Swedish study in which a single question on work capacity was found to have strong association with the future degree of sickness absence among already long-term sick-listed women (>60 days) (178). Pro-longed sickness absence is sometimes explained by individual factors such as personality or motivation to work (179), but our findings do not support such notions. Adjustment for general self-efficacy had a low impact on the association between low work capacity and limited work participation.

The odds for return to work and for limited work participation only changed slightly when adjustments were made for persistent mental illness (I, II) and low mental well-being respectively (I), which underpin the idea that the work capacity variables reflect entities other than mental health problems. These findings emphasize the importance of addressing work capacity to promote return to work and work participation. This suggestion is supported by Wåhlin et al's (2013) findings that patients with mental health problems significantly improved their work capacity and return to work with a combination of work-related and medical/rehabilitative interventions (107, 180). However, in an American study only a third of depressed patients were asked work-related questions by their primary care physicians (49). A similar situation seems to be present in Sweden; physicians' sickness certificates have been found to describe work capacity and functioning inadequately (60, 125, 181). From the findings in studies III and IV, it is clear that decreased capacity to work needs to be recognised and addressed in the sickness absence and return to work process. From qualitative studies, the obstacles from decreased work capacity and the importance of regaining work capacity have been identified as key components in the return to work process (182, 183).

Work capacity in relation to knowledge demands

Work capacity in relation to knowledge demands had both a short and long-term effect on sickness absence. In line with our findings a Finnish survey found that participants reporting lack of knowledge also rated their work capacity lower (77). In this all-cause sickness absence group, we had a group reporting persistent mental illness, however we do not know whether that illness was ongoing and the cause of the present sick-leave. Almost 30% reported low mental well-being. It is likely that, among these individuals, some had a diagnosis of CMD and some might have had unidentified mental health problems. Therefore, an explanation for our result might be mental health-related cognitive impairments (184) which could be assumed to affect work capacity related to knowledge demands. In the qualitative studies (III-IV), the participants described several components that could be related to knowledge demands, such as difficulties learning new tasks and comprehending the purport of verbal and written information, which all decreased the capacity to work. In addition, other hypotheses could be drawn from these studies. A higher vulnerability to increasing or changing demands related to knowledge was described. Furthermore, the stigma around mental illness reduced the individual's propensity to ask others for help or guidance. Both these findings, related to the person's contextual surroundings, might contribute to self-assessed low work capacity in relation to knowledge demands.

From our studies work capacity related to knowledge demands seems to be an interesting predictor for return to work and work participation. However since comparison studies are lacking, it is important to confirm our result in future studies. From a health care or employer perspective, low work capacity related to knowledge demands at work can most probably be addressed by adjustments or training/education, which then could promote return to work and work participation.

Work capacity in relation to mental demands at works

Mental work capacity was significantly associated with late return to work (I) and the association between persistent mental illness and return to work became even non-significant when adjusted for mental work capacity. It seems likely that many contemporary jobs require mental work capacity, which could explain why low mental work capacity was associated with late return to work. This finding corroborates a study on patients with cancer,

which found that work capacity related to mental demands at work was associated with late return to work (> 6 months) (108). This finding is also supported by studies showing that emotional work demands predict a longer time until return to work (185). However, the dimension was not associated with future work participation (II) which was quite surprising. That seems to suggest that work capacity related to mental work demands is more important for return to work than for future work participation. However, the different study samples needs to be considered, and it is not possible to confirm this suggestion from our findings.

The result in study II is in line with Vingård et al (2005) who found a crude risk ratio of 1.6 between work capacity in relation to mental demands at work and long-term sickness absence in a 3-year follow-up in a working population of women employed in the public sector (176). However, our adjusted non-significant result is still intriguing considering that from 2000-2005, on average, 39% of employed women and 35% of employed men reported exposure to hectic and mentally demanding work in Sweden. The proportions were even higher among mid-level and high-level white collar workers (44-47%) (4). Because high mental work demands have been associated with low self-assessed work capacity, another result could have been expected (77, 108). Findings in studies III and IV could be hypothesised to be related to mental work capacity, such as "surrounded by a continuous work flow with a hypersensitive mind" and "reduced and altered capability at work". It is understandable that such decreased capacity to work prolongs time until return to work, however, one might have also thought that this would have impacted future work participation.

There could be several interpretations for the non-significant association with limited work participation. Regarding high mental work demands in the labour market, a possible hypothesis can be drawn from the research on job strain. In a Finnish study, no association between job strain and sickness absence was found however, in a sub-analysis with individuals with psychological distress only, job strain was found to be associated with sickness absence (186). This implies that job strain might affect individuals with mental health problems only; such sub-analysis was not performed in study II. From that follows, if the mental demands at work are related to CMD, these disorders are by nature more short-term, and individuals might have recovered from the CMD during follow-up, which might explain the result. A second explanation might be drawn from sickness presenteeism studies. These studies suggest that individuals with mental health problems seem to go on working despite their sickness (45, 46), and in one way or another cope with reduced work capacity, as shown in the qualitative studies

(III-IV). A third explanation might be over-adjustment. Although the results in study II were non-significant, the possible explanations as well as the strong association with return to work, imply that work capacity related to mental demands at work seems to have a place in occupational health research, as well as in health care.

Work capacity related to collaborative demands at work

Work capacity related to collaborative demands had a strong association with late return to work and a significant but weak association with limited work participation. Comparisons with other studies are not possible since no other studies have examined this issue. However, a cross-sectional study has found that individuals reporting difficulties with social interactions also reported lower work capacity (77). The weak association with limited work participation is intriguing because several studies have pointed to the importance of the social environment for sickness absence and work participation (187-189). However, comparison between study I and II is not possible, because of the different study samples used.

Collaborative work capacity is needed in most jobs and types of occupations and has been identified as an important dimension of work capacity (73, 75). It has been found that work demands requiring a high degree of public contact were associated with work limitations and work absences in depressed people but not in healthy controls (49). This is in line with several other studies showing that interpersonal relations at work are difficult for individuals with mental health problems (48, 63). In our qualitative studies (III-IV) difficulties with collaboration and interactions with managers, work mates and customers were identified as important. From this, we suggest that collaborative work capacity is an important predictor. However, future studies are needed to confirm our findings.

Work capacity in relation to physical demands at work

Work capacity in relation to physical demands at work was significantly associated with both late return to work and limited work participation. This finding was less unexpected since several studies have shown that the physical work environment is an important risk factor for sickness absence (174, 190-192). Such contextual demands have also been found to prolong

time until return to work (193). The finding in study I is in line with De Boer et al (2008), they found that reduced work capacity predicted time until return to work in patients with cancer (108). The finding in study II is in line with a Swedish study of women employed in the public sector; a crude risk ratio of 1.8 was found for physical work capacity and long-term sickness absence (> 28 days) (176). A poor physical work environment and a high physical work load have been associated with low work capacity in relation to physical demands (77, 194). Such circumstances can be expected to be relatively stable and without any ergonomic adjustments at the workplace that would increase the likelihood of both late return to work and limited work participation, which may be a possible explanation for our results. In the sensitivity analysis (II) with individuals receiving sickness compensation excluded, the odds for limited work participation decreased. This is in line with studies showing that low work capacity in relation to physical work demands is associated with early exit from the labour market (195, 196). It is an important finding, and implies that it is important to address physical work capacity to promote return to work and future work participation. This also applies to individuals with mental health problems because, in some studies, these individuals have been shown to have the same likelihood (OR) of difficulties with physical work demands as, for instance, individuals with arthritis (44).

5.2 The phenomenon capacity to work while depressed and anxious

The findings in studies III and IV are discussed together because both studies form the basis for the conceptualization of capacity to work while depressed and anxious.

5.2.1 Main findings

The phenomenon of capacity to work incorporated a dimension of a changed perception from a well-known to a no longer recognizable work performance accompanied by feelings of uncertainty and of being in a quagmire. In both studies, difficulties with time demands, pace, dealing with emotions and interpersonal encounters emerged. Continued working was described as

possible by the use of a working facade, new work practices, withdrawal from the work community and a trade-off between work and leisure-time activities. The work context was experienced and described as interacting with the person's capacity to work. To be at work under these circumstances and without daily refuelling, even with previous well-known work tasks, was described in both studies as exhausting and contributing to further strain.

5.2.2 The content of the phenomenon

To our knowledge studies III and IV are the only studies up to date to explore and conceptualize capacity to work in individuals with depression and anxiety. The capacity to work was perceived (III) and interpreted (IV) as the dynamic interaction between the person, the environment and the work tasks, and thereby related to theoretical descriptions of work capacity (66). However, the professionals (IV) experienced difficulties in the interpretation of the task or "the doing" at work. In earlier research, the work task has been pointed out as an important part of understanding capacity to work (66, 73-75). The Individual Work Performance model, illustrates how capacities such as enthusiasm, initiative and politeness (contextual performance) are dimensions of the work performance (73). Such subtle dimensions might be difficult to understand, however they are important in order to carry out some work tasks sufficiently. The contextual performance has been argued to be especially important in relation to mental health problems, due to the hardship in handling such work demands (62).

The work task of interpersonal encounters and collaborations with people, be it customers, clients or co-workers, was a pronounced constituent of the phenomenon in both studies III and IV. This finding corroborates a review of the effect of CMD on work ability in health care professionals (48) and with several presenteeism studies where interpersonal work tasks were found to be significantly more difficult to handle for employed individuals with mental health problems compared with healthy controls (49-51). Nordenfelt (2008) argues that specific work capacities are needed when dealing with people, because such situations involve a continuous interaction with continuous adaptation and change in one's behaviour (75). He discriminates between the ability to communicate and collaborate (general competence) and the ability to support, comfort and use empathy (personal competence). The loss of the personal competence was specifically highlighted by participants working with professional encounters such as counseling (III). Moreover, Nordenfelt argues that these competencies are exceptions in the medicolegal contexts of

work capacity where technical competence (e.g. physical/mental strength, cognitive capacity) is more commonly described and requested, excluding all the necessary abilities needed to interact with people (75). Collaborative work capacity was significantly associated with both return to work and work participation, which highlights the importance of this dimension. However, low collaborative work capacity is rarely reported; it might be a sensitive and difficult matter for individuals to admit to and discuss. Despite this, it needs to be addressed because it is an important part of capacity to work and could be expected to be decreased in many individuals with depression and anxiety.

The capacity to work was decreased in several ways, including difficulties dealing with emotions, time and pace, and daily work tasks. These capabilities are identified as important (73) and in line with an earlier review (48) and several presenteeism studies (49-51). Furthermore, the capacity to work was affected by exhaustion and fatigue, pinpointed in both studies III and IV. Similar results were found in a Finnish survey investigating dimensions of work ability; exhaustion and fatigue were found to be significantly associated with self-assessed low work ability as well as feeling mentally drained (77). Because of the lack of other studies exploring capacity to work in individuals with mental health problems, comparisons must be made with related studies. In a meta-synthesis of qualitative studies related to return to work, handling individual demands was a key concept; patients had difficulties with forgetfulness, exhaustion, concentration, emotions and not exceeding one's limit, findings that are in agreement with our findings (182). Stakeholders in the return to work process, have pointed to the need for adjustment of work load, simplification of work tasks and pacing at work as important matters for employees with CMD (183), in line with our findings.

The findings of "deficient work satisfaction and loss of refuelling" (III) and patients' lack of ability to appreciate themselves as well as their accomplishments (IV) can be related to the importance of work enjoyment described in the Work Ability House model (77). Low work enjoyment was highly significantly related to poor work ability in both men and women, and in all age groups (77). A closely related concept is motivation, described as part of the Individual Work Performance model (73). A possible interpretation of our findings is decreased motivation, however "the demanding act of being good enough" (III) and "a show must go on experience" (IV) contradict such an interpretation. The lack of motivation is also contradicted in the above-mentioned qualitative meta-synthesis where a high sense of responsibility and perfectionism was found to be a problematic behaviour, making it difficult to set limits and slow down the pace (182).

The trade-off between work capacity and leisure-time activities (III) as well as the life crumbling outside work (IV) imply that capacity outside work emerged as part of the capacity to work. To our knowledge, only one model, the Work Ability House model, explicitly includes private life in work ability (77). They found that non-domestic activities, such as going to movies or other events (77), and artistic hobbies (197) were associated with and promoted good work capacity. Earlier studies have identified factors out-side work as important for sickness absence and rehabilitation (198-200). In addition, several longitudinal studies of working individuals have found that the need for recovery following perceived work demands must be taken seriously, since such a need is associated with increased health complaints (201, 202), as well as decreased work capacity and sickness absence (201, 203, 204). Among work demands, mental and emotional demands specifically were found to be associated with increased need for recovery and more health complaints (201). Several ICF core sets for work capacity and/or CMD have been suggested (205-207). In these core sets, doing housework and leisure are included, implying their importance for individuals with CMD. Not including or considering the out-side work capacity might hamper the full understanding of capacity to work in individuals with mental health problems.

A kind of extended work place emerged in both studies understood as taking part in the work community at a more general level. However, the question is whether the fulfilment of work place expectations (such as participating in the extended work place) is really considered in work capacity concepts, be it in a medicolegal context or at the work place. Work places would probably take into account the problems faced by a disabled employee in a wheel chair or a work mate with food allergies when arranging, for example, events outside work such as staff conferences, travels or social events located elsewhere. The stigma related to mental health problems (42, 208, 209) probably make adjustments for workers with CMD more difficult even if relevant, and even more problematic in return to work. Other important parts of the work community include socializing with co-workers during coffee breaks or work-related social events during leisure time. However, are these activities to be regarded as work tasks (included in capacity to work) or are they leisure? The work community was found to be an important contextual environment that highly influenced the capacity to work in individual's with mental health problems. This is in line with several other studies pointing to the importance of work community participation to promote return to work and work participation (182, 183, 188, 189, 210, 211).

5.2.3 The complexity of capacity to work

The presence of positive mental health, return to one's usual normal self and return to one's usual functioning at work, school and home are things that are most valued by patients when assessing remission from a depressive episode (212). Emphasis on functioning in addition to symptoms of mental health disorders has been argued for in several studies (62, 213). A novel idea proposed by Anckarsäter (2010) argues that mental health problems should be defined by their functional outcome rather than the current diagnostic criteria. This, he argues, would be safer for patients from a medicolegal perspective in relation to insurance policies (214). Because there are individuals with severe depression or anxiety with no reduction of their capacity to work and individuals with subthreshold symptoms with decreased work capacity (5), there seems to be a mismatch between the disorders, work capacity, and regulations on sickness benefits.

The general concept of work capacity is vague and has various meanings (56). Different interpretations by stakeholders have been found in many studies and the conclusion often presented is the need for a definition (68-72, 215, 216). Vagueness was conveyed in all focus groups and the topic was found to be difficult since participants were so unaccustomed to discuss it (III-IV). In study IV, the category of "an elusive concept" emerged as a finding of its own. This could be seen as unexpected since legislation in Sweden has included the work capacity concept for many years. The legal aspect of the concept, its relation to legislation and citizens' trust in authorities, makes a definition important to develop (60, 217). A recent review of the conceptualization of work (dis)ability concluded that work ability was seen as a relational concept between the individual and different contexts in most of the studies. Apart from that, no shared understanding of work capacity seems to exist (57). Of the 115 studies from various fields included in that review, only a few were specifically related to mental health problems. The need for more studies in this field is obvious.

The complicated and dynamic mix of symptoms, functions and capacities makes it difficult to define work capacity. The disorders and work capacity are often regarded as separate concepts; however, this thesis shows that they are experienced and interpreted as unified phenomena. Most likely a definition of work capacity for individuals with depression and anxiety needs to unify the perspectives in order to be interpreted as relevant and accurate. In this thesis the extended work place, the work community and the private life outside work emerged as parts of work capacity. Including these parts in a work capacity definition needs consideration, but might still be relevant if

further studies find similar interpretations of work capacity as in studies III and IV.

The disorders are considered to be universal; likewise it might be that capacity to work while depressed and anxious is universal. An empirically-developed definition of capacity to work could be tested in different settings and contexts. If people with depression and anxiety experience decreased capacity to work based on such a definition, it would be possible to attribute decreased work capacity more directly to the depression and anxiety disorders. Such attribution to disorders might lead to reduced stigma. Today, preconceived notions exist, for instance, of being unmotivated. Such notions might be reduced if it is realized that the decreased work capacity is due to the disorders and not related to the individual's motivation.

5.3 Work capacity as a measure in epidemiological research

We do not know how the individuals with decreased capacity to work in studies III and IV would self-assess their work capacity in an epidemiological survey. The complexity of the phenomenon might lead to difficulties in self-assessment of work capacity. Maybe individuals self-assess their work capacity as rather high in a work capacity scale, and the decreased work capacity is interpreted as only temporarily reduced, at least by newly sick-listed individuals. Better knowledge on how individuals interpret work capacity questions would be valuable in order to further develop work capacity measures in epidemiological research. Moreover, the findings in studies III and IV highlight the importance of the work context which is also supported by literature (66, 77). It might be that the context, measured for example by job strain measures, would be of greater importance than self-assessed work capacity for work participation. However, Vingård (2005) found that mental and physical work capacity were significantly associated with future sickness absence, but the demand-control-support model (included in the same model) was not (176). This implies that work capacity questions contribute with valuable knowledge in work participation research.

Because of the high prevalence of mental health problems in the work force, it seems important to use work capacity questions that specifically capture decreased work capacity in these individuals. The four questions used in studies I and II appear to be relevant for this purpose, in relation to the

findings in study III and IV. The collaborative work capacity is expected to be a particularly important work capacity question. New questions suggested from the qualitative findings could be work capacity related to time demands required by the work or work capacity related to attending social activities demanded by the work.

To develop a new question from the findings in studies III and IV, the phrasing "demanded by your work" in the current questions in study I and II needs to be reconsidered since this is an important part of the construct of the questions. This part directs work capacity towards the work task and the important context (66). Therefore, new work capacity questions would probably gain from a similar construct. However, important dimensions of capacity to work in study III and IV for individuals with mental health problems, such as the working facade and the new work practices, might be difficult to include in this construct. But, asking for the perceived existence of a working facade, or whether new work practices are used or needed in order to be able to work, could contribute to better identification of individuals at risk for late return to work and limited work participation.

5.4 Methodological considerations

An overall strength of this thesis was the approach to explore work capacity as a phenomenon of its own since the knowledge of what constitutes capacity to work and how it is associated with return to work and work participation is scarce. It is a pre-requisite for many medicolegal aspects although in research it is most often explored through a proxy such as sickness absence. The methodological considerations are discussed for the quantitative and qualitative studies separately.

5.4.1 Studies I and II (the quantitative studies)

These studies used data from the HAP based on a general population sample of newly sick-listed. This is a major strength. Several earlier studies have been based on specific occupational samples, clinical samples or on samples including a mix of individuals on on-going sick-leave and those newly sick-listed. Occupational and clinical samples are often affected by selection bias and a general population sample avoids that. An often cited and important study is the Whitehall study (64, 218). A weakness in that study is that it

consists only of civil servants in a specific age group. A general population sample increases generalisation and comparisons with other national and international studies. Few other studies are available on newly sick-listed individuals and even if the participants are not "true" incident cases (some of them have been sick-listed earlier in their lives), it is an advantage to be able to separate exposure related to the sickness absence per se. In the studies included in this thesis, adjustment for earlier sickness absence was made to control for a possible influence of exposure related to earlier periods of absence. Other major strengths are the longitudinal and prospective design. In addition, the link with official registers reduces the risk of attrition and recall bias. We believe that the findings can be generalized to the general population of Sweden, and probably also to other countries.

Bias might be introduced by the attrition rates and social desireability. Furthermore, two of the four work capacity measures are not yet validated questions.

Selection bias

In the present studies there was drop-out between the target population (*n*=12 543), the invited population (registered within the inclusion period, *n*=6403) and the cohort (*n*=3310). Attrition from the target population was higher among men, individuals with low income, individuals with a high level of education, individual on their first sick-leave and slightly higher among immigrants (129). After discussion among the authors and with other experts, we have concluded that there is no reason to believe that these individuals are in any way different regarding the exposures investigated in this thesis compared with those invited to participate in the study. The invited cohort consisted of 49% of the target population, which is a large proportion in population-based studies.

In the invited population, a significantly higher number of drop-outs were younger people (19-30 years), individuals with low income, living alone, immigrants and women living in urban areas. However, in the study samples (*n*=2502) and (*n*=1082), no further selection bias seemed to be introduced. Individuals with more than one sick leave spell and unemployed were excluded from the study sample, therefore it might be that our study population was biased as a result of a healthy selection effect; our estimations might be underestimated. Numbers of drop-outs from the invited cohort was

high, however we do not consider that this affected the associations found in the studies (219, 220).

The proportion with low work capacity was low in our study sample. It is likely that individuals with low mental work capacity in particular would refrain to a higher degree from participation in a questionnaire study with a large number of cognitively demanding questions (221). If this is the case, the proportion reporting low work capacity might be low in comparison with the true distribution. Once again, associations would not be affected, but, confidence intervals may be wider and less precise. In both studies, we investigated common confounders to control for possible bias due to systemic drop-out (222).

The work capacity measures

The mental and physical work capacity questions were extracted from a validated instrument (138). It should be noted that the validation was done for the whole index and in working populations only. In addition, the construct validity was measured against a general health index (138). However, we believe these measures to be valid.

Work capacity related to knowledge demands at work was derived from the Copenhagen Psychosocial Questionnaire (139) and the question has not been validated. The question might be understood in terms of not being able to handle the knowledge demands but normally you possess the knowledge or, you lack the knowledge the work requires. However, the interpretation is not clear and might affect content validity; the face validity we still believe is acceptable. The low numbers reporting low work capacity in this dimension and the strong association with both return to work and work participation might imply high specificity of this question.

Work capacity related to collaborative demands at work was developed within the research group from findings in earlier research. The question has not been validated. However, we believe the question to have both content and face validity. A similar question has been introduced into the new tool for assessment of work capacity at the SSIA (223). This question had the second lowest proportion, which might be explained by psychological mechanisms making it easier to assign low collaborative capacity to work mates than admitting to having low capacity to collaborate oneself. On the

other hand, that might imply high specificity; those who actually rated low collaborative work capacity also had these difficulties.

The low numbers with low work capacity might be due to social desirability, making individuals report high work capacity rather than low work capacity; this could lead to underestimation of our estimates. It has been found in at least one study that depressed patients overvalue their work capacity compared with their general practitioner (172). Another important issue is how people understand work capacity questions. It could be that work capacity is interpreted as a rather stable phenomenon. If people think that, they might have reported their normal work capacity (most probably high) and interpreted any decreases up to the date of the questionnaire as just temporary, especially if they had any minor disorder. In that case, we might have underestimated the association between work capacity and return to work/work participation. A time frame could have been introduced into the question; for example, work capacity in the last 2 weeks.

All participants were recruited as newly sick-listed, however the inevitable delay between the start of the inclusion period and the date of completion of the postal questionnaire meant that some participants had already returned to work when they answered the questionnaire. That means that work capacity was assessed under different circumstances for those already back at work and those still sick-listed (n = 1082). A misclassification is possible; however the direction is not clear. Work ability is likely to be rated higher by those back at work. On the other hand, once back under the strain of work demands, participants might have assessed their work capacity as low. For those still sick-listed, recall bias might have introduced misclassification

The mental health measures

The internal dropouts in the WHO (Ten) Well-Being Index were replaced by imputation. The variable was analysed in several ways. No systemic drop-out regarding any of the specific items was found. However, compared with similar questions placed before and after, missing data were more prevalent for the well-being measure. This indicates that the missing data were not missed at random (224). The reason why this particular question generated higher levels of internal drop-out is not clear. It might be random in relation to the content of the question; the drop-out might be related to the position of the question in the questionnaire. Through imputation, the sample size was increased. The proportions reporting high and low mental well-being before

and after imputation did not change but a possible misclassification bias might have been introduced, although it is not known in which direction. If, through the imputation, the group with low mental well-being became larger, our results are overestimated. The converse is also plausible, with a likely underestimation.

The outcome measures

The return to work measure (I) was divided into three categories and harmonized to the Swedish national regulations. Given the high impact of the regulations on individuals' entitlement to sickness benefits this is relevant and often done (103, 105). However, this makes cross country comparisons more problematic.

The measure of work participation (II) was quite crude but can be considered robust because sickness absence exceeding 14 days implies both a medical disorder and substantial reductions in work capacity, both verified by a medical certificate. The category of limited work participation includes the sick leave period paid by the employer, meaning an absence of at least 15 days, and is used in several studies (225, 226). However a limitation is that the national register lacks data on shorter sick leave spells. That information is available from employers only. Short-term sickness absence could contribute to a substantial loss of working days.

Adjustments in study II

In study II, it is likely that we introduced over-adjustment, however, in order to find the strongest predictor, such adjustments can be justified (144).

5.4.2 Studies III and IV (the qualitative studies)

To enhance trustworthiness in qualitative studies III and IV, several actions were taken (Table 4), (165, 227-229).

Table 4. An overview of the trustworthiness in studies III and IV described through credibility, transferability, dependability and confirmability. (if not stated otherwise, the points refer to both studies)

Credibility	- Researchers familiar with the context - Several authors familiar with qualitative research - Scrutinizing focus group moderators' actions (III) - Comprehensiveness through different sources of participants - Reflexivity through different professions within the author groups - Two authors identifying meaning units (III) - Discussion on the excluded data between two authors (IV) - The shift of one moderator and two authors between the studies - Peer debriefing; considerations and proposals worked through
Transferability	- The inclusion criteria of individuals with current lived experiences of working while depressed and anxious, both men and women of different ages, working in different occupations (III) - The inclusion criteria of health care professionals experienced in treating individuals with depression and anxiety disorders. Working in health care settings most responsible for treating patients with CMD and related work capacity issues; three of these with geographical responsibility (IV) - Professionals from different professions allowing for different experiences in relation to patients (IV) - Thick descriptions
Dependability	- A field diary was used during the preparation and the analyses - Field notes taken after each focus group and the first listening of the audio recordings - Written summaries of the emerging results with a wealth of quotes - Written summaries of all author meetings and peer reviews
Confirmability	- Written summary of the first author's pre-understanding - Data collection in study IV started when study III was close to be submitted; there was 1 year between the analyses of the two studies - The audit-trail (described under dependability) - Transcripts in each study read by several authors

Credibility

To ensure credibility several issues were considered (Table 4). However the methods used and the participants' experiences might have hampered the exploration of the phenomenon capacity to work which need to be discussed.

The focus group method introduces the risk of participants creating a hierarchal structure, which hampers expression of opposing views or strives for consensus opinions. To hinder consensus, the participants were encouraged to give as many diverse descriptions of capacity to work as possible. To enhance individually told narratives and meanings, the informants received the questions before the focus group (III and IV), making it possible for the participants to start thinking without the influence of others (230). We believe that the invitation to discuss existing patient cases (IV) also contributed to lower the risk of consensus. Another consideration, with regard to study III, is that the exposure to others in a focus group might have been too challenging, due to stigma, shame and/or individual's presumed anxiety symptoms, and may have led to fewer participants and less variety of lived experiences. It could be hypothesized that men in particular would hesitate to discuss reduced capacity to work in a group setting. Furthermore, when comparing the results from study III and IV, it is possible that participants in study III hesitated to disclose specific lived experiences in the group setting, maybe due to stigmatization and shame. It is possible that more variety of experiences could have been recorded if we had complemented the focus groups with individual interviews.

When developing the questions, we strived to combine recommendations from both phenomenological and focus group methods; we included few questions to allow for new and unexpected narratives/subjects to emerge (162, 163, 231) and focused on the "what" of a phenomenon (157, 231-233). However, the participants' difficulties in distinguishing capacity to work from symptoms and functions affected quality of the data. Although the moderators used probes frequently to get lived experiences (III) or descriptions of capacity to work (IV), it still created problems in the analyses because it was not always easy to distinguish capacity to work from the symptoms of the disorders as these phenomena are closely linked and they may overlap. Not coding the meaning units in study IV, we think allowed capacity to work to emerge from the data. A coding process could have made the symptoms and functions to come to the fore.

Transferability

There were few young participants, relatively few men and limited working experiences (many participants worked with people); these limit the transferability of the results. We would have preferred a larger variety of working experiences among participants in study III so that no important aspects of the phenomenon were missed. Moreover, the participants were self-selected and those who chose to participate might have experienced decreased capacity to work to a larger extent than those who did not. On the other hand, the findings in study IV supported the essence and the constituents in study III, which suggests that the central and important parts of capacity to work while depressed and anxious have been found. All common professions from three different health care systems participated in study IV, accounting for a broad variety of experiences from different types of patients. The concordance between the two studies thereby suggests that the results can be generalized. An important statement in study IV was that the professionals had not experienced that male and female patients with depression or anxiety described the capacity to work differently.

Confirmability

The concordance on capacity to work was large across the two studies. Despite the actions taken (Table 4) to limit any bias due to pre-understanding and familiarity with the context, the findings could still have been biased (157, 158, 234, 235). The main author of the qualitative studies is an occupational therapist with extensive experience of psychiatric care, rehabilitation and return to work of patients with depression and anxiety. She also moderated and analysed both studies. Her familiarity with patient encounters, disclosures of reduced functioning and emotional topics, and with professional language and settings among health care professionals, was considered primarily as an advantage. However, to limit bias, the use of the focus group method was considered important, because focus groups have been described as reducing the power imbalance between researchers and participants (167). As a moderator, compared with individual interviews, potential bias from pre-existing knowledge was lessened. Study III preceded study IV, which we believe increased the quality of the data in study IV, making the moderator more successful in focusing on capacity to work rather than the closely related symptoms and functions.

5.5 Relevance and implications

The increasing level of sickness absence in society is a major public health question. Many factors contribute to sickness absence (65, 236). In this thesis, we found that among cases of all cause sickness absence, mental health problems and low work capacity predicted both time until return to work and work participation a year later. That implies that low mental well-being and low work capacity need to be identified and addressed early, both in health care and in work places, to prevent longer and even later sickness absence. The duration of sick leave is assessed on individual basis, and, in some cases a longer period of absence is needed, relevant and well-motivated. However, being sick-listed might cause negative and unwanted consequences such as reduced well-being, social isolation, stigmatization, changed self-image, economic strain and secondary health problems. To screen for low mental well-being among patients with all-cause sickness absence as a complement to the diagnostic procedure might be relevant way to identify those at risk of a longer time to return to work.

The qualitative findings describe work capacity in relation to mental health problems. The conceptualization of capacity to work in this thesis goes beyond the symptoms and bridges the gap between the medical perspective and the individuals' experiences of capacity to work. The conceptualization could enhance the possibility of early identification of reduced work capacity. It may improve communication and collaboration between stakeholders in the sickness absence process, especially between physicians and patients regarding fitness for work, and between supervisors and employees regarding accommodation at work. To reduce time until return to work and prevent future limited work participation, it is reasonable to believe that questioning patients about capacity to work in the health care setting could help to differentiate more easily between those who need rehabilitation and those who do not.

Best practice or interventions to enhance work capacity are still lacking (13, 179). Psychological interventions are proposed, but they will be directed towards the individual only (182); the qualitative findings as well as the literature suggest that the work place also needs to be involved (187-189, 210, 237). In addition, a recent Cochrane review found that psychological interventions did not reduce time until return to work (238). A common intervention is graded return to work; however, when this is implemented without accommodation at the work place it may not be successful (210). Instead, identifying the constituents and particular components of the individuals decreased work capacity, followed by tailor-made work

accommodation or interventions such as identifying tasks that could contribute to refuelling, may enhance the success of return to work. Furthermore, in order to prevent sickness absence, the individual's increased need to recover must also be addressed.

6 CONCLUSION

In this thesis, self-assessed low mental well-being, even after adjustment for four work capacity dimensions, was a strong predictor of late return to work among individuals sick-listed for all-cause sickness absence. Mental well-being also predicted limited work participation a year after the base-line self-assessment. Our findings support the importance of identifying individuals with low mental well-being as a way to prevent late return to work and to promote work participation.

Self-assessed low work capacity in relation to knowledge, mental, physical and collaborative demands at work increased the likelihood of a late return to work. All but mental work capacity also predicted limited work participation at the 1-year follow-up. Self-assessed work capacity is seldom investigated as a predictor of return to work and work participation. However, self-assessed work capacity seems to be a promising predictor and could also be used in health care settings. The use of work capacity questions in conjunction with the normal diagnostic procedures could help to identify individuals at risk for future sickness absence and promote work participation.

The exploration and conceptualization of capacity to work while depressed and anxious add to the scant knowledge of this phenomenon. The capacity to work included a perception of changing from a familiar to an unrecognizable performance at work and difficulties with time management, daily work duties, emotional demands and collaboration. Incorporated were also the individual's capacity to contribute to the work place community and disturbance of work place orders and routines. Furthermore, out-side work activities were also included into the concept. These findings support an extended understanding of capacity to work compared with theoretical or medico-administrative descriptions, which needs to be acknowledged in health care, occupational medicine, and in related research. Capacity to work differed from symptoms and functions, and a terminology of its own might enhance understanding of the phenomenon among all participating stakeholders in the rehabilitation process. To strive for the development and the use of such a terminology seems to be important. The different components and particulars of capacity to work identified in this thesis could contribute to the development of such a terminology. Applied to encounters with affected individuals and other stakeholders, it could promote fitness for work dialogue and enhance tailor-made interventions in return to work.

7 FUTURE PERSPECTIVES

The description and content of capacity to work would benefit from further studies, particularly from the point of view of managers and co-workers. A third study conducted in the same way as studies III and IV with work place representatives would contribute valuable knowledge. In this thesis, the content of capacity to work while depressed and anxious has been described and conceptualized. However, in work capacity assessments capacity to work needs to be operationalized and assessed in relation to the individual's own work and work demands; in such circumstances work capacity is an individual condition. Work capacity assessments specifically targeting depression and anxiety disorders are lacking (14) and needs to be developed.

The low frequency of low self-assessed work capacity in this study of individuals off sick or recently off sick in studies I and II raises the question of how people interpret and identify work capacity in general. Studies on interpretation of work capacity have been conducted with stakeholders (70, 216, 239). However how lay people describe and interpret work capacity in general and how they differentiate between symptoms, functions and work capacity is unknown. The few existing studies are related to specific disorders. Such studies would contribute to the common understanding of work capacity.

An important finding in this thesis was that low mental well-being and low work capacity were predictors of return to work and work participation. However, these findings need to be confirmed in future studies. It is important to develop easily administered screening questions to identify individuals in need of more intense interventions. To investigate whether such instruments would be of help in the health care setting to identify these individuals and if that would lead to earlier return to work would be of great interest.

Time to return to work has been associated with several factors, for instance mental health problems and demands at work. However no study seems to have investigated whether the duration of decreased capacity outside paid work has any association with the time until return to work. The need for recovery has been associated with sickness absence, therefore longitudinal studies of the association between decreased capacity outside paid work and time until return to work could contribute new knowledge to the complex topic of return to work and sickness absence.

Of great importance in relation to return to work and work participation is work place stigma and ignorance regarding mental health problems (208). In study III, the participants hesitated to disclose their disorders and related reduction in capacity to work. This is a dilemma since most studies on efficient interventions to prevent sickness absence due to CMD or to promote return to work seem to involve the manager and the work place (182, 189, 210, 211). Work place-based management programmes with participatory processes (240) could contribute to the importance of awareness in the work place context of the work incapacity and might also reduce stigma. A hypothesized effect is reduced sickness absence related to mental health problems. From the employer perspective, it could lead to substantially reduced costs for sickness absence and employee turn-over (241).

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APPENDIX

THE INDEPENDENT VARIABLES

Persistent mental illness

Question 7 in the HAP questionnaire. Those who ticked for mental problems were considered to have persistent mental illness.

Do you have any lasting illness, health problem or handicap?
Several alternatives can be given

1 ☐ No
1 ☐ Cardiovascular disease, abnormal blood pressure
1 ☐ Asthma/bronchial problems/allergy
1 ☐ Dermatitis/eczema/allergy
1 ☐ Symptom/pain in muscles, joints, connective tissue
1 ☐ Rheumatic disease
1 ☐ Neurological illness
1 ☐ Mental problems
1 ☐ Endocrinological disease (e.g. diabetes, goitre)
1 ☐ Tumour
1 ☐ Stomach problem
1 ☐ Gynaecological problems

1 ☐ Another illness *State which, write in the box:*

WHO (Ten) Well-Being Index

Question 11 in the HAP questionnaire.

How have you felt during the past week?
Place an 'x' in the box that agrees best with each statement.

		All the time	Often	Some-times	Never
		1	2	3	4
a.	I have felt sad and down	☐	☐	☐	☐
b.	I have felt calm and relaxed	☐	☐	☐	☐
c.	I have felt energetic, active and go-ahead	☐	☐	☐	☐
d.	When I woke up, I felt alert, rested and full of enterprise	☐	☐	☐	☐
e.	I have felt happy or pleased and satisfied with my personal life	☐	☐	☐	☐
f.	I feel satisfied with my life situation	☐	☐	☐	☐
g.	I am living the kind of life I want to live	☐	☐	☐	☐
h.	I have been keen to deal with the day's work or to make new decisions	☐	☐	☐	☐
i.	I have felt that I can cope with serious problems or changes in my life	☐	☐	☐	☐
j.	I have felt that life is full of interesting things	☐	☐	☐	☐

Work capacity

Question 40 in the HAP questionnaire. The question of emotional demands was not used in the studies in this thesis, due to high correlation with mental work capacity.

How do you rate your current capacity to work with respect to:

Mark with an 'x' in each row.

	Very good	Reason-ably good	Not so good	Rather poor	Very poor
	1	2	3	4	5
…the knowledge demands required by the job?	☐	☐	☐	☐	☐
…the mental and psychological demands required by the job?	☐	☐	☐	☐	☐
…the emotional demands required by the job?	☐	☐	☐	☐	☐
…the demands for cooperation required by the job?	☐	☐	☐	☐	☐
…the physical demands required by the job?	☐	☐	☐	☐	☐