Workplace support and the return-to-work process for patients with stress-related mental disorders

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To my patients

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ABSTRACT

Background: Sick leave with psychiatric diagnoses has increased markedly in Sweden over the past two decades, with stress-related mental disorders now accounting for around 20% of all ongoing cases. A similar trend is observed across other OECD countries. As these conditions have major consequences at individual, employer and societal levels, increased understanding of factors that facilitate return to work (RTW) is essential.

Aim: The overarching aim of this thesis was to explore work-related changes and workplace adjustments during the RTW process among individuals with stress-related mental disorders, and to examine the role of workplace support in facilitating RTW.

Method: Study I examined work-related changes at a seven-year follow-up among patients diagnosed with exhaustion disorder (ED) (n = 217). Study II, a qualitative study, explored perceived facilitators of RTW among ED patients (n = 20). Study III compared the duration of sick leave between a structured employer-involvement procedure and treatment as usual (n = 112). Study IV linked self-reported workplace adjustments from a national survey (n = 1,412) to registered sick-leave days at 6 and 18 months.

Results: The results show that most individuals reported work-related changes in their RTW process, including changing workplace or work tasks. Women reduced their working hours to a greater extent than men. A holistic approach involving organisational preparedness, supportive leadership and tailored adjustments was viewed as essential for RTW. The structured intervention involving employer contact did not shorten sick-leave duration. Self-reported adjustments provided by the employer were associated with fewer sick-leave days.

Conclusion: Most participants on sick-leave with stress-related mental disorders make some form of work-related change or adjustment during RTW. Experiences from ED patients point to the potential value of a broader RTW perspective, considering organisational conditions and managerial support. Women more often tended to reduce their working hours, which may indicate a need to consider gender aspects in RTW planning. The intervention did not result in shorter sick-leave durations, which may indicate limited effectiveness; however, the potential impact of contextual factors on implementation of the intervention should also be considered.

Keywords: Stress-related mental disorders; Exhaustion disorder; Return to work; Employer involvement; Workplace adjustments; Gender perspective

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SVENSK SAMMANFATTNING

Bakgrund: Sjukfrånvaron till följd av psykiatriska diagnoser har ökat markant i Sverige under de senaste två decennierna, och stressrelaterade psykiska sjukdomar står numera för omkring 20% av alla pågående sjukfall. En liknande utveckling ses även i andra OECD-länder. Eftersom dessa tillstånd medför betydande konsekvenser på individ-, arbetsgivare- och samhällsnivå är en fördjupad förståelse av faktorer som underlättar återgång i arbete av stor vikt.

Syfte: Det övergripande syftet med denna avhandling var att undersöka arbetsrelaterade förändringar och arbetsplatsanpassningar under återgång i arbete hos personer med stressrelaterade psykiska sjukdomar, samt att undersöka vilken roll stöd från arbetsplatsen har för att underlätta denna process.

Metod: Studie I undersökte arbetsrelaterade förändringar vid en sjuårsuppföljning av patienter diagnostiserade med utmattningssyndrom (n = 217).
Studie II var en kvalitativ studie som utforskade patienter med utmattningssyndroms upplevelser av faktorer som underlättade återgång i arbete (n = 20).
Studie III jämförde sjukskrivningsdagar mellan en strukturerad modell för samverkan mellan primärvård och arbetsgivare med sedvanlig behandling för patienter med stressrelaterade psykiska sjukdomar (n = 112).
Studie IV kopplade självrapporterade arbetsplatsanpassningar från en nationell enkät (n = 1,412) till registrerade sjukskrivningsdagar vid 6 och 18 månader för patienter med stressrelaterade psykiska sjukdomar.

Resultat: Resultaten visade att majoriteten av deltagarna hade gjort någon form av arbetsrelaterad förändring i samband med återgång i arbete, exempelvis byte av arbetsplats eller förändrade arbetsuppgifter. Kvinnor minskade sin arbetstid i större utsträckning än män. En helhetssyn, där organisatorisk beredskap, stödjande ledarskap och individuellt anpassade åtgärder ingår framstod som viktigt för återgång i arbete vid utmattningssyndrom. Den strukturerade interventionen med samverkan mellan primärvård och arbetsgivare ledde inte till färre sjukskrivningsdagar. Självrapporterade arbetsanpassningar var däremot förknippade med färre sjukskrivningsdagar.

Slutsats: Arbetsrelaterade förändringar var vanliga vid återgång i arbete och arbetsplatsanpassningar var kopplade till kortare sjukskrivning. Patienternas erfarenheter av utmattningssyndrom belyser värdet av ett bredare perspektiv på återgång i arbete, där organisatoriska förutsättningar och chefens stöd beaktas. Kvinnor tenderade oftare att minska sin arbetstid, vilket kan tyda på behovet av att inkludera ett genusperspektiv i planeringen av återgång i arbete. Den strukturerade interventionen i primärvården förkortade inte sjukskrivningens längd signifikant, vilket kan indikera begränsad effektivitet. Samtidigt bör hänsyn tas till kontextuella faktorer som kan ha påverkat genomförandet av interventionen.

LIST OF PAPERS

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

I. Beno, A., Hensing, G., Lindegård, A. et al. Self-reported changes in work situation – a cross-sectional study of patients 7 years after treatment for stress-related exhaustion. BMC Public Health 21, 1222 (2021). https://doi.org/10.1186/s12889-021-11242-5

II. Beno, A., Jonsdottir, I.H. & Lindegård, A. Facilitating Return to Work through a Broader Perspective on Vocational Rehabilitation: Insights from Patients with Stress-Related Disorders. J Occup Rehabil (2025). https://doi.org/10.1007/s10926-025-10311-5

III. Beno, A., Bertilsson, M., Holmgren, K. et al. Does employer involvement in primary health care enhance return to work for patients with stress-related mental disorders? a cluster randomized controlled trial. BMC Prim. Care 24, 195 (2023). https://doi.org/10.1186/s12875-023-02151-0

IV. Beno, A., Hensing, G & Jonsdottir, I.H. Workplace adjustments and sick leave duration among individuals with stress-related disorders: A longitudinal register follow-up in Sweden. *Submitted.*

ABBREVIATIONS

CBT	Cognitive Behavioural Therapy
CI	Confidence Interval
CMD / CMDs	Common Mental Disorder(s)
ED	Exhaustion Disorder
GP / GPs	General Practitioner(s)
HAD	Hospital Anxiety and Depression scale
ICD-10	International Statistical Classification of Diseases and Related Health Problems, 10th Revision
ISM	Institute of Stress Medicine
JDC	Job Demand–Control Model
JD-R	Job Demands–Resources Model
MiDAS	Micro Data for Analysis of Social insurance
OHS	Occupational Health Services
OECD	Organisation for Economic Co-operation and Development
PEO	Person–Environment–Occupation Model
PHCC / PHCCs	Primary Health Care Centre(s)
PTSD	Post-Traumatic Stress Disorder
RC / RCs	Rehabilitation Coordinator(s)
RTW	Return to Work
SD	Standard Deviation
SMBQ	Shirom–Melamed Burnout Questionnaire
SPSS	Statistical Package for the Social Sciences
TAU	Treatment As Usual
VGR	Region Västra Götaland
WHO	World Health Organization
WRS	Work-related stress

CONTENTS

1. INTRODUCTION

Mental health is an increasing concern in Sweden, as well as in several other European countries (1, 2). Previous studies have established a clear link between work-related stress and mental health problems such as depression, anxiety and stress-related disorders (3, 4). However, the underlying mechanisms are complex and depend on factors such as workload, leadership and influence in the workplace, as well as individual capacities, including coping strategies and social support (5).

The consequences of stress-related mental health problems are evident at multiple levels: individuals may experience long-lasting symptoms and extended sick leave; employers face reduced productivity, higher absenteeism and turnover; and society bears increased costs for social security and healthcare systems (1, 6).

In Sweden, stress-related mental diagnoses account for around one-fifth of all sick leave cases (7). The rise in sick leave due to work-related stress reflects a broader trend observed across several European countries (8). Given the complex underlying mechanisms and long-lasting symptoms, prolonged sick leave for individuals with stress-related mental diagnoses often presents challenges for the individual, the employer and the healthcare system. As most individuals on sick leave with stress-related mental diagnoses attribute their illness to work-related factors (9, 10), the workplace is consequently likely to play a central role in the RTW process. Further knowledge is needed to gain a better understanding of how to facilitate RTW for individuals with stress-related mental diagnoses and the role of workplace factors in this process. The aim of this thesis is to contribute to this knowledge gap by exploring the RTW process and identifying workplace factors that may facilitate RTW for individuals with stress-related mental diagnoses.

2. BACKGROUND

2.1. Working life and health

Work-related stress (WRS) has become an increasingly prevalent concern across Europe and globally over the past few decades (11, 12). According to the World Health Organization (2003), WRS is defined as the response that may occur when individuals are confronted with work demands and pressures that are disproportionate to their knowledge and abilities, thereby challenging their capacity to cope (11, 12). Prolonged exposure to imbalance in the workplace may lead to a variety of adverse health outcomes, affecting both psychological and physiological well-being (13).

A growing body of research highlights the significant influence of the work environment, organisational structures and leadership in the development of stress-related mental disorders (14-16). Poor organisational conditions, such as high demands, low decision latitude and lack of social support, have consistently been associated with mental illness and burnout (14).

In clinical populations, such as patients diagnosed with exhaustion disorder (ED), the most frequently reported work-related stressors include high quantitative and emotional demands, managerial responsibilities and workplace conflicts. In addition, non-work-related stressors, such as caregiving responsibilities, relational difficulties and financial strain, are commonly reported (9).

WRS leads to significant economic and personal burdens, affecting employees, organisations and society as a whole (17). These burdens manifest in the form of reduced productivity, increased absenteeism and presenteeism, higher healthcare expenditures and premature workforce exit (17).

Given the substantial burden at individual, workplace and societal levels, international guidelines, including those from WHO (2022), highlight organisational interventions as essential for mental health promotion and successful RTW (12). These include reducing excessive workloads, improving work organisation and training managers to recognise and address work-related stress (12).

2.2. Stress-related mental disorders, burnout and exhaustion disorder

Stress-related mental disorders encompass a range of conditions, including acute stress reactions, adjustment disorders and reactions to severe stress (18, 19). These conditions are

typically seen as transient responses to identifiable stressors and are often expected to resolve over time with or without treatment. Burnout is a psychological condition resulting from prolonged and unmanaged occupational stress, leading to physical and emotional exhaustion. First described by Freudenberger in the 1970s (20) and later conceptualised by Maslach and Jackson through the dimensions of emotional exhaustion, depersonalisation, and reduced personal accomplishment (21), burnout is now recognised by the World Health Organization as an occupational phenomenon in ICD-11, defined by energy depletion, mental distancing from work, and impaired performance (22). Recent literature distinguishes between common burnout symptoms and clinical burnout, the latter being a more severe and persistent condition requiring professional diagnosis and intervention (23, 24). While overlapping with major depressive disorder, burnout is believed to be conceptually and empirically distinct (25). Despite the lack of international consensus on the classification of burnout as an occupational disease, nine countries formally allow it to be recognised as such, and a few also provide compensation in cases of illness linked to occupational burnout (26).

The development of the ED diagnosis in Sweden was prompted by the inadequacy of existing concepts, such as burnout, to meet the needs of clinical practice. Clinical burnout has been used in different context to define patients with stress-related exhaustion and there is a clear overlap between the symptoms of ED and those referred to as clinical burnout (27). The prevalence of stress-related mental disorders in Sweden is unknown, presenting a challenge in determining the proportion of affected individuals on sick leave. A summary of stress-related diagnoses and burnout is presented in Table 1.

Table 1. Summary of stress-related mental diagnoses and diagnostic criteria.

Stress-related diagnoses	Summary of diagnostic criteria
F 43.0. Acute stress reaction	The main criteria for an acute stress reaction are the presence of intense fear, helplessness or horror, and the development of symptoms that occur within one month of exposure to an extreme traumatic stressor. Symptoms may include persistent re-experiencing of the trauma, avoidance of reminders of the trauma, increased arousal and negative alterations in cognitions and mood.
F 43.2. Adjustment disorder	The diagnostic criteria for adjustment disorder include the development of clinically significant emotional or behavioural symptoms in response to an identifiable stressor within three months of the stressor's onset. Distress is typically out of proportion with expected reactions to the stressor. The symptoms must cause clinically significant distress or impairment in social, occupational or other important areas of functioning.
F 43.8A Exhaustion Disorder	The diagnostic criteria for exhaustion disorder include persistent fatigue and exhaustion, accompanied by physical, cognitive and/or psychological symptoms, caused by stress exposure for at least six months. Additionally, the symptoms must be severe enough to cause clinically significant distress or impairment in social, occupational or other important areas of functioning.
F 43.9. Reaction to severe stress	Reaction to severe stress diagnosis is usually used for a short period of stress/crisis reaction, when the criteria for 43.0 Acute Stress Reaction, F43.2 Adjustment disorder or F43.8A Exhaustion Syndrome are not met.
QD85. Burnout	Burnout is a syndrome arising from chronic workplace stress that is not successfully managed, characterised by energy depletion, mental distancing or cynicism towards work, and a sense of reduced effectiveness and accomplishment. It refers specifically to the occupational context and should not be applied to other areas of life.

ED was introduced as a clinical diagnosis in Sweden in 2005 and is a distinct condition characterised by more persistent and debilitating symptoms related to long-term exposure to stress, particularly in the workplace (28). Diagnostic criteria are presented in Table 2.

Table 2. Diagnostic criteria for Exhaustion Disorder as defined by the Swedish National Board of Health and Welfare (2003).

Diagnostic criteria Exhaustion Disorder
A. Physical and mental symptoms of exhaustion with minimum two weeks duration. The symptoms have developed in response to one or more identifiable stressors which have been present for at least six months.
B. Markedly reduced mental energy, which is manifested by reduced initiative, lack of endurance or increase of time needed for recovery after mental efforts.
C. At least four of the following symptoms have been present most of the day, nearly every day, during the same 2-week period: 1. Persistent complaints of impaired memory. 2. Markedly reduced capacity to tolerate demands or to work under time pressure. 3. Emotional instability or irritability. 4. Insomnia or hypersomnia. 5. Persistent complaints of physical weakness or fatigue. 6. Physical symptoms such as muscular pain, chest pain, palpitations, gastrointestinal problems, vertigo or increased sensitivity to sounds.
D. The symptoms cause clinically significant distress or impairment in social, occupational or other important areas of functioning.
E. The symptoms are not due to the direct physiological effects of a substance (e.g. drug abuse, medication) or a general medical condition (e.g. hypothyroidism, diabetes, infectious disease).
F. If criteria for major depressive disorder, dysthymic disorder or generalised anxiety disorder are met, exhaustion disorder is set as a comorbid condition**.**

The core symptoms of ED include extreme physical and mental fatigue, cognitive impairments (particularly in memory and concentration), reduced stress tolerance, sleep disturbances and a range of somatic symptoms (29). The clinical burden of ED is substantial and affects both men and women similarly. Research indicates that the illness trajectory is not significantly influenced by gender or age (29). Cognitive symptoms have received increasing attention, with neuroimaging studies demonstrating structural changes in brain regions associated with cognitive function (27). These changes may be partially reversible, yet a subset of patients continue to experience significant cognitive impairment several years after treatment initiation (30).

In a long-term follow-up study, approximately one-third of patients still met the criteria for ED seven years after initial care-seeking. Additionally, 30–40% reported ongoing problems with memory and concentration, and up to 70% continued to experience reduced stress tolerance (31). This indicates that for some individuals, ED should be recognised as a potentially long-lasting condition with significant implications for clinical management, social functioning and work participation.

2.3. Rehabilitation for stress-related mental disorders

Stress-related mental disorders and burnout are increasingly recognised as significant public health concerns, yet the absence of clearly established effective treatments remains a major challenge. Systematic reviews and meta-analyses indicate that cognitive-behavioural therapy (CBT) tailored to work-related stress provides the most consistent, though modest, short-term improvements in exhaustion, anxiety and depression (32, 33) Multimodal rehabilitation programmes combining psychological therapy, physical activity and stress management may also alleviate symptoms, but effect sizes tend to be small and evidence of sustained benefits is limited (32, 34). Mindfulness-based interventions, aerobic exercise and cognitive training have been explored, with some indications of improved perceived stress, sleep and selected cognitive domains; however, randomised trials are sparse, heterogeneous and generally yield non-robust effects across studies (32, 34). In line with this, Perski et al.'s meta-analysis found no significant pooled effects on core psychological symptoms compared with usual care (35).

Despite growing clinical experience and policy focus in rehabilitation for stress-related mental disorders, methodological limitations, such as small sample sizes, heterogeneous outcome measures and lack of long-term follow-up, continue to constrain the evidence for specific treatments (34, 36, 37). Further high-quality trials are needed to clarify which interventions work best, for whom and under what conditions (36, 38).

2.4. The Work Environment Act and the employer's responsibility in the rehabilitation process

In Sweden, the Work Environment Act (Arbetsmiljölagen, 1977:1160) establishes a comprehensive legal framework assigning employers the primary responsibility for ensuring a safe and healthy work environment. This responsibility encompasses not only the prevention of work-related illnesses and accidents but also the facilitation of employees' RTW following illness or injury (39). Specifically, the Work Environment Act mandates that employers systematically plan, direct and monitor activities to ensure a satisfactory work environment. This includes the obligation to organise appropriate work modifications and rehabilitation to support RTW. Furthermore, employers must collaborate with employees and relevant stakeholders to develop and follow up RTW plans. These plans should be tailored to the individual's needs and may involve adjustments to work tasks, working hours or the physical work environment. The employer's responsibility persists throughout the duration of the employment relationship, emphasising the importance of early intervention and continuous support in the rehabilitation process.

2.5. Swedish sickness insurance and sick leave regulations

Sweden's sickness insurance system, administered by the Swedish Social Insurance Agency, provides financial compensation and rehabilitation support to individuals who experience reduced work capacity due to illness or injury. The insurance is designed not only to offer income protection but also to promote RTW through structured coordination between individuals, healthcare providers, employers, and state actors. The insurance is governed primarily by the Social Insurance Code (2010:110) (40). A defining feature of the Swedish model is its "rehabilitation chain", which outlines a structured timeline for assessing work ability in relation to different reference points (41). This model emphasises early intervention, progressive evaluation and tailored rehabilitation support.

During the first 90 days of sick leave, an individual is entitled to sickness benefit if they are unable to perform their regular work or any temporary work with their employer. After 90 days, entitlement to sickness benefit applies only if the individual is unable to perform any work at all for their employer. After 180 days, entitlement to sickness benefit requires that the individual is unable to perform any work available on the general labour market. There are, however, specific exceptions whereby work ability may continue to be assessed in relation to employment with the current employer beyond day 180. These include:

- When it is likely that the individual will be able to return to their regular employment, with the same working hours, within one year of the onset of sick leave.
- When there are particular reasons indicating that the individual will be able to return to employment with their employer no later than day 550.
- In cases of serious illness or rehabilitation following an accident.
- When the individual is 63 years of age or older.

The system also includes rehabilitation coordination and collaboration requirements between the Swedish Social Insurance Agency, healthcare providers, employers and, in some cases, occupational health services or municipalities. The overall goal is to support work retention and sustainable RTW through early assessment, gradual work reintegration and active case management.

2.6. Health care system

In Sweden, the rehabilitation process for patients with stress-related mental health conditions, such as ED, involves a collaborative approach among various healthcare stakeholders, primarily within the primary healthcare setting. General practitioners (GPs) serve as the initial point of contact, responsible for diagnosing, initiating treatment and issuing sick leave certificates. They evaluate the patient's overall health and work capacity, and consider the implications of both absence from and engagement in work on the patient's recovery (42). Rehabilitation coordinators (RCs) have been integrated into primary healthcare centres to enhance the coordination of the RTW process (42). They act as liaisons between the patient, healthcare providers, employers and the Swedish Social Insurance Agency, facilitating communication and ensuring a cohesive rehabilitation plan. RCs are instrumental in organising meetings that include all relevant parties to discuss and plan the patient's RTW strategy. Their role is central in creating a supportive environment that addresses both medical and occupational aspects of the patient's recovery. Occupational health services (OHS) in Sweden play an important role in facilitating RTW for employees whose workplaces involve OHS in the RTW process. OHS professionals typically conduct workplace assessments, suggest adjustments and support both the employer and employee during rehabilitation. Because engagement with OHS is based on voluntary agreements between employers and service providers, a small proportion of workers do not have access to OHS (42). Although OHS cover around 60% of the Swedish workforce, their role in coordinating RTW activities remains limited (43). In the Swedish healthcare context, the majority of individuals seeking help for mental health problems do so within primary care (44). Furthermore, the majority of sick leave certificates in Sweden are issued within primary and hospital care, whereas only a small proportion are issued by physicians in OHS (45).

2.7. Gender in relation to stress-related mental disorders, sick leave and return to work

Gender differences in stress-related mental disorders and sick leave are pronounced in Sweden (7, 46), a similar trend is also found across OECD countries (47, 48). While symptom severity among men and women with stress-related exhaustion appears similar (29), women are disproportionately represented in long-term sickness absence statistics (7). The Swedish labour market exhibits gender segregation, with women predominantly employed in the public sector, such as education, healthcare and social services, while men are more

represented in technical and industrial roles (46). Sectors such as health care, social care and education, where women are overrepresented, are characterised by higher job demands and lower decision authority, factors that may contribute to increased stress levels (49). According to Laaksonen et al. (2010), a substantial part of the gender gap in sickness absence is attributable to occupational segregation, as women are more frequently employed in occupations characterised by high psychosocial demands and low decision authority (50). Gender likely also plays a role in the RTW process; however, few studies have examined this relationship, and further research is needed. In a qualitative study by Nybergh et al. (2021), women more often expressed a need for home-related interventions, while men emphasised organisational interventions to facilitate RTW (51). Moreover, Coutu et al. (2020), using an interpretive description approach, found that traditional gender roles shape the RTW process, with women more often facing a double workload and unmet needs for flexibility, while men prioritised a rapid return, underscoring the need to consider both work and private life in sustainable RTW planning (52).

2.8. Return to work

RTW in the context of stress-related mental disorders is a complex and multifactorial process that requires active collaboration between healthcare providers, employers and employees (38, 53). The most consistently supported interventions are those that integrate clinical and workplace-directed components, addressing both individual and organisational factors (54-56). A systematic review by Pijpker et al. (2019) concluded that interventions combining clinical treatment and workplace modifications improve both burnout symptoms and RTW outcomes (56). Similarly, meta-analyses have shown that workplace involvement, especially when part of multicomponent interventions, significantly improves RTW outcomes in individuals with stress-related mental disorders or CMDs (54, 55). Conversely, a recent systematic review by Brämberg et al. found limited evidence for work-directed interventions; however, team-based approaches involving workplace contact and work-focused CBT may positively influence RTW outcomes in individuals with CMDs, including stress-related mental disorders (57).

Examples of successful interventions are often found within OHS settings, where structured dialogue with employers constitutes a key element. For instance, Karlson et al. (2010, 2014) evaluated a Swedish workplace-oriented intervention involving a structured meeting between employees and supervisors, supported by a clinical team. This model was associated with improved long-term RTW outcomes, particularly among younger participants (58, 59).

Similarly, Netterstrøm et al. (2013) found that a multidisciplinary stress treatment programme, which included repeated workplace dialogue meetings, significantly increased short-term RTW (60).

The role of the manager in the RTW process is a key factor in successful reintegration for individuals recovering from stress-related mental disorders and burnout (61-63). Rooman et al. (2021) found that supervisor support, especially understanding and appreciation, was associated with higher RTW quality after burnout (61). Similarly, Nieuwenhuijsen et al. (2004) concluded that active managerial involvement, including communication and support in planning accommodations, is crucial for RTW among employees with CMDs (62). Kärkkäinen et al. (2018) also identified poor communication and lack of managerial support as predictors of prolonged sick leave in individuals with clinical burnout (63).

Individual-level interventions to support RTW among patients with stress-related diagnoses have traditionally emphasised symptom reduction through psychological treatments such as CBT, stress management and mindfulness (32, 34, 53). Although these approaches can alleviate emotional exhaustion and psychological distress, their effects on RTW are generally weak and inconsistent unless workplace elements are included (32, 34, 53).

2.9. Theoretical framework

Although this thesis does not apply a unified theoretical framework across all studies, some established models of work-related stress and occupational functioning have been used to inform the design and interpretation of specific studies. The job demand-control (JDC) model, originally developed by Karasek and Theorell (64), posits that high job demands combined with low decision latitude can lead to psychological strain and ill health, particularly when social support at work is also low. The Job Demands-Resources (JD-R) model (65) extends earlier models by specifying that job demands (e.g. emotional demands, cognitive load) are most harmful when not balanced by sufficient resources (e.g. autonomy, feedback, supervisor support). In Study III, a formal theoretical framework was applied in the intervention design through the Person-Environment-Occupation (PEO) model, originally developed in occupational therapy (66). This model assumes that occupational performance is the outcome of dynamic interactions between the person, the environment and the occupation.

3. AIM

The overarching aim of this thesis was to explore work-related changes and workplace adjustments during the RTW process among individuals with stress-related mental disorders, and to examine the role of workplace support in facilitating RTW.

Study I

The primary aim of this study was to investigate whether patients with ED reported changes at work in terms of workplace, work tasks or working hours due to their exhaustion. The second aim was to examine whether changes in work situation were related to sex, age and symptoms of burnout, depression, or anxiety. The third aim was to explore whether changes at work were associated with self-reported stress exposure.

Study II

The aim of this study was to explore how patients diagnosed with ED experienced the RTW process, including their views on what would have been beneficial for RTW at the individual, workplace, and organisational levels.

Study III

The aim of this study was to evaluate whether a systematic procedure involving collaboration between GPs, RCs, and employers could reduce sick-leave days for patients with stress-related mental disorders over a 24-month follow-up period. An intervention group was compared with treatment as usual (TAU).

Study IV

The primary aim of this study was to investigate the types of workplace adjustments received by individuals with stress-related mental disorders to facilitate RTW. The secondary aim was to assess whether these adjustments were associated with the duration and extent of sick leave.

Table 3. Overview of included studies in the thesis.

Study	Aim	Design	Data collection	Participants	Data analysis
Study I	Explore whether patients with ED had made any changes in their work situation from the period of treatment and up to 7 years later.	Cross-sectional study	Questionnaires at baseline and 7-year follow-up	ED patients at Specialist clinic, N=217	Chi-square tests, logistic regression, Holm-Bonferroni correction, Newcombe´s method 10
Study II	Explore and highlight what patients diagnosed with ED thought would have been beneficial for their RTW.	Qualitative study	Semi-structured interviews 7–12 years after care	ED patients at specialist clinic, N=20	Inductive content analysis
Study III	Evaluate whether a systematic procedure involving collaboration between GPs, RCs and employers could reduce sick leave-days.	Cluster randomised controlled trial	Questionnaires at baseline and registry data at 3-, 6-, 12- and 24-month follow-up	Patients with stress-related diagnoses at PHCCs in VGR, N=112	Descriptive statistics, Mann–Whitney test
Study IV	Investigate what types of workplace adjustments patients reported receiving and whether adjustments were associated with reduced sick leave.	Register-based follow-up of a cross-sectional survey	Questionnaires and registry data	Patients still on sick leave after 6 months with stress-related diagnoses in Sweden, N=1412	Descriptive statistics, Quantile regression analyses

4. METHODS

4.1. Studies I and II

4.1.1. Study design

Study I employed a cross-sectional design, whereas Study II used a qualitative inductive approach based on semi-structured interviews. Both studies were part of a broader longitudinal cohort study and drew on data collected from individuals diagnosed with ED seven years after their initial referral to a specialist stress clinic.

4.1.2. Participants

All individuals included in Studies I and II had previously undergone treatment between 2004 and 2012 at a specialist clinic in Västra Götaland, Sweden, which exclusively treated patients with ED. Referral criteria required that symptoms be consistent with ED, without evidence of any underlying somatic or psychiatric disorder that could explain the symptoms. Upon referral, physicians at the clinic conducted a diagnostic assessment to confirm that each patient met the formal criteria for ED before initiating treatment. Individuals presenting with alternative diagnoses that could explain the symptoms were not treated at the clinic and therefore were not included in the study. In most cases, some form of treatment had already been initiated by the referring physician prior to the clinic visit. At the clinic, patients received individualised treatment programmes composed of similar elements but adapted to their specific needs. Regular appointments with a physician were provided, and consultations with a psychologist or psychotherapist were available when required. Lifestyle modifications, particularly regarding physical activity and sleep, were consistently emphasised during clinical visits. Physiotherapists offered tailored support in graded physical activity. Patients with pronounced sleep difficulties were, towards the latter part of their rehabilitation, offered cognitive behavioural group therapy. In addition, all patients had access to psychoeducation and stress management programmes following their initial assessment. Details on the diagnostic process and treatment protocols used at the clinic have been published by Glise et al. (2012) (29).

4.1.3. Recruitment

Following completion of initial treatment, patients were successively invited to participate in follow-up assessments. Of the 506 individuals originally admitted and followed up at the clinic, a total of 334 were eligible for Study I, having reached the seven-year follow-up. Among these, 217 participants (65%) returned the questionnaires and were included in Study I. A subgroup of 155 individuals provided complete responses regarding workplace changes

and were included in specific analyses concerning work-related changes. A flow-chart summarising participant inclusion is presented in Fig. 1.

In Study II, eligible individuals were those who had received treatment at ISM and for whom at least seven but no more than twelve years had passed since treatment, in total 334 individuals. Among these 163 individuals accepted to participate in a clinical assessment (see Fig 1). These individuals attended a clinical follow-up visit with a physician and were subsequently invited to participate in an interview regarding their experiences of RTW and vocational rehabilitation. All participants had returned to work at the time of the interview. To ensure variation with respect to gender, age, education level and employment sector, recruitment was conducted consecutively until 20 participants were included, all of whom gave written consent (see Fig. 1).

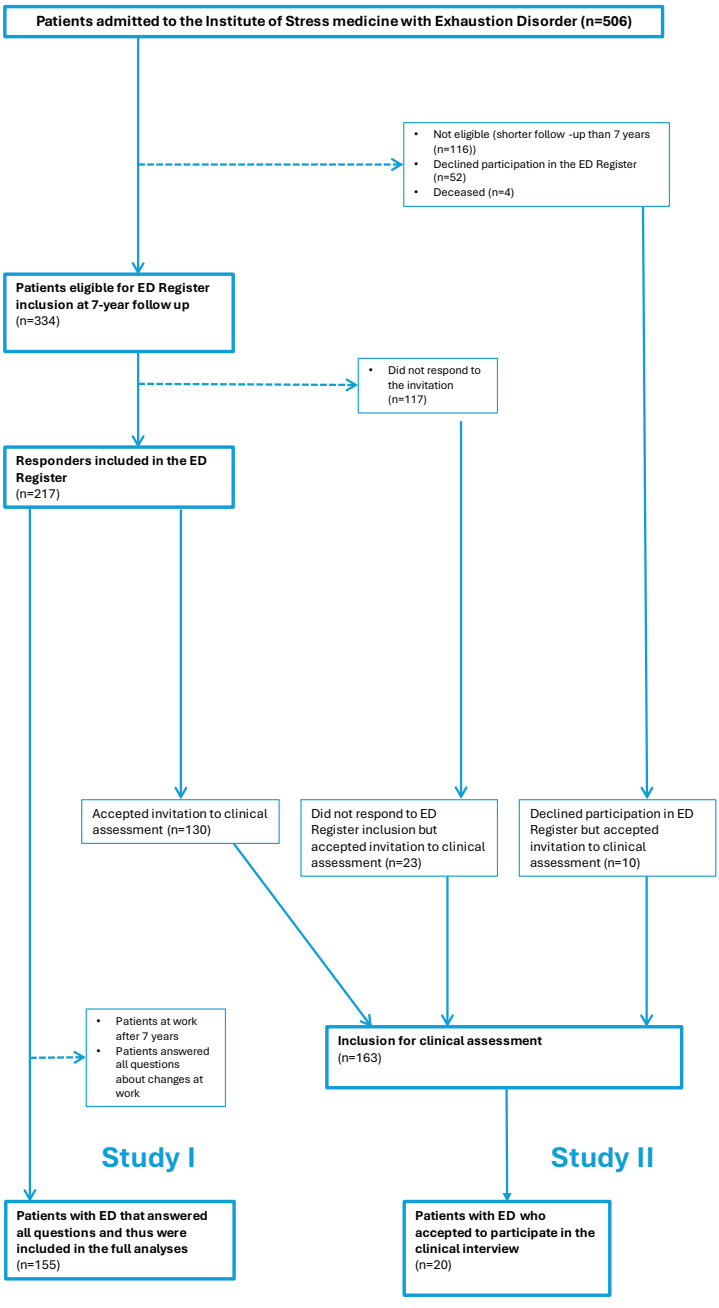
Patients admitted to the Institute of Stress medicine with Exhaustion Disorder (n=506)
Not eligible (shorter follow -up than 7 years (n=116))
Declined participation in the ED Register (n=52)
Deceased (n=4)
Patients eligible for ED Register inclusion at 7-year follow up (n=334)
Did not respond to the invitation (n=117)
Responders included in the ED Register (n=217)
Accepted invitation to clinical assessment (n=130)
Did not respond to ED Register inclusion but accepted invitation to clinical assessment (n=23)
Declined participation in ED Register but accepted invitation to clinical assessment (n=10)
Patients at work after 7 years
Patients answered all questions about changes at work
Inclusion for clinical assessment (n=163)
Study I
Study II
Patients with ED that answered all questions and thus were included in the full analyses (n=155)
Patients with ED who accepted to participate in the clinical interview (n=20)

Figure 1. Flow chart Studies I and II

A total of 506 patients diagnosed with exhaustion disorder (ED) were initially admitted to the Institute of Stress Medicine. Of these, 334 individuals were eligible for inclusion in the register at the seven-year follow-up. In total, 217 patients (65%) responded to the follow-up questionnaires. Among the study population, 163 participants agreed to take part in a clinical assessment. Finally, 20 participants accepted to participate in a clinical interview.

4.1.4. Measurements and Instruments (Study I)

Baseline Data

Sociodemographic information collected at baseline included sex, age, marital status, level of education and number of working hours. Participants also reported their current occupation and sick leave status.

Work situation

The participants' current and previous work situation was assessed by asking them to report their employment status at the time they initially sought care for ED. They were provided with the following five response options: 1. working full time/part time (%), 2. studying, 3. unemployed, 4. retired and 5. parental leave full time/part time (%). These same five alternatives were presented again at the seven-year follow-up, along with an additional option: 6. no longer able to receive sickness benefits.

In addition, participants were asked to report whether they were currently on sick leave both at baseline and at the seven-year follow-up. The six available response options were: 1. not on sick leave, 2. sick leave 25%, 3. sick leave 50%, 4. sick leave 75%, 5. sick leave 100%, and 6. disability pension.

Workplace changes were assessed with two yes/no items: 'Have you changed your workplace because of your illness?' and 'Have you changed your work tasks because of your illness?'. Only participants who answered all questions regarding changes in workplace, work tasks and working hours were included in the analysis of overall changes in work situation. Due to item non-response, the sample size varied between analyses.

Symptoms of burnout, depression and anxiety

Burnout symptoms at baseline were measured using the Shirom-Melamed Burnout Questionnaire (SMBQ) (67), adapted to an 18-item version following Rasch model evaluation (68). Each item was rated on a 1–7 scale, and a mean Rasch-transformed score exceeding 4.4 was used as cut-off for clinical burnout.

Symptoms of anxiety and depression were evaluated at baseline using the Hospital Anxiety and Depression Scale (HAD) (69), comprising 14 items (seven for each subscale). Scores were categorised as 0–7 = non-case, 8–10 = possible case and 11–21 = clinical case. For this study, responses were dichotomised as "non-case" (0–10) and "case" (11–21) on both subscales.

Self-reported stressors

At follow-up, participants completed a structured questionnaire on perceived stress exposures, reported both retrospectively (before seeking care) and at the time of follow-up. The items were derived from a prior qualitative analysis of the patients' medical records (9). Stressors were initially identified jointly by physician and patient during the baseline diagnostic interview and later categorised into 24 domains: 11 work-related and 13 non-work stressors. Examples of work-related stressors included quantitative demands, emotional strain, workplace conflicts, management responsibilities, organisational restructuring, poor leadership, job insecurity, irregular schedules, traumatic incidents, poor physical environment and dissatisfaction at work. Non-work-related stressors included bereavement, caregiving duties, financial difficulties, illness, family conflict and loneliness. Participants were also allowed to list additional stressors in a free-text field.

4.1.5. Variables and Statistical Analyses

Age was dichotomised (<40 vs. ≥40 years), as were marital status (married/cohabiting vs. single/other), education level (lower: elementary or high school vs. higher: university) and sick leave status (part-time: 25–75% vs. full-time/permanent: 100%). Changes in working hours were categorised as unchanged, reduced, or increased compared to baseline.

Descriptive statistics were calculated and presented as frequencies and percentages. Pearson's chi-square test was used to examine differences between responders and non-responders and between work change groups based on demographic and clinical variables. Logistic regression analyses were conducted to evaluate associations between sex, age, SMBQ burnout score and HAD depression/anxiety scores and reported work-related changes. A Holm-Bonferroni correction was applied to adjust for multiple comparisons. Confidence intervals for differences in proportions of self-reported work-related stressors and work-related changes were estimated using Newcombe's method 10 (70). Analyses were conducted in IBM SPSS Statistics version 22 and the Epi package in R.

4.1.6. Interview procedure (Study II)

Semi-structured interviews were conducted to retrospectively explore participants' RTW experiences over the seven years following treatment. Interviews were carried out by a trained ergonomist at the ISM and lasted between 30 and 45 minutes. The interview guide consisted of open-ended, non-directive questions designed to facilitate in-depth reflection and discussion. It contained four core questions, consistently applied across all interviews, aimed at eliciting insights into perceived workplace adjustments, rehabilitation experiences and key success factors in the RTW process. The primary interview questions are presented in Table 4.

Table 4. Interview questions.

If your working life has changed during the past seven years, can you describe the changes (change of work tasks, workplace or change of working hours).
If you made changes at work, in what way were the changes important for you to be able to work the way you want to?
In your particular case, what actions at the workplace do you think have been the most important to the outcome of your rehabilitation?
What do you think is important at the workplace to ensure a sustainable RTW for patients with ED?

Table adapted with permission from Beno et al. Journal of Occupational Rehabilitation (2025). The content is identical to the published version but presented here in a revised layout for the purpose of this thesis.

4.1.7. Analysis method

The interview material was analysed using qualitative content analysis with an inductive approach, enabling the identification of both manifest and latent content (71, 72). All interviews were conducted by the last author, who also worked as an ergonomist at the institute. Verbatim transcription was performed by an independent researcher. In the initial phase, the first and last authors independently identified meaning units relevant to the study's aim. In the next step, codes were generated separately and later merged into subcategories and categories through joint discussions. This iterative process was applied to all transcripts. An overarching theme was then developed to capture the latent content across interviews. Examples of the coding and categorisation procedure are presented in Figure 2.

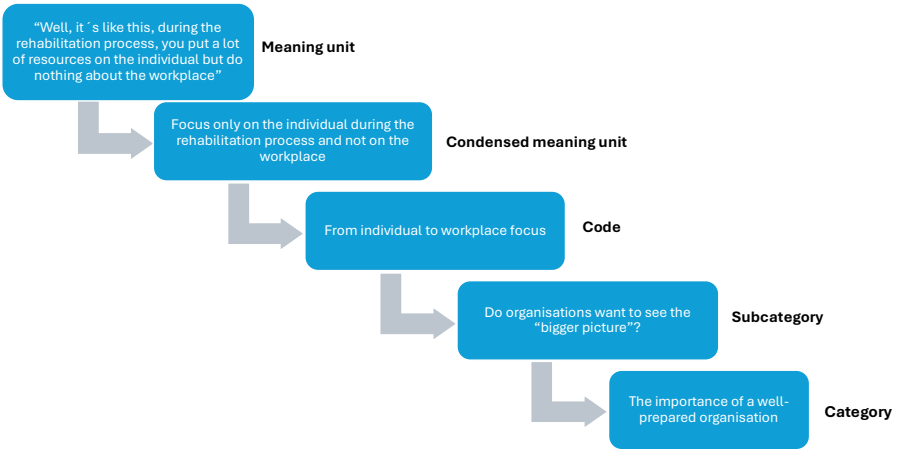

Figure 2. Categorisation process using qualitative content analysis

4.2. Study III

4.2.1 Study design

This study was conducted as a cluster-randomised controlled trial in Region Västra Götaland, Sweden, an area encompassing approximately 200 primary health care centres (PHCCs) and covering about one-fifth of the Swedish population. It was part of the broader research programme New Ways, which aims to identify and manage CMDs and promote sustainable work participation. The project was a collaboration between ISM, Region Västra Götaland and the Department of Work Science and Sociology at the University of Gothenburg.

4.2.2. Eligibility and recruitment

Eligible participants were employed individuals diagnosed with ICD-10 F43 codes, including acute stress reaction (F43.0), adjustment disorder (F43.2), exhaustion disorder (F43.8A) and reaction to severe stress (F43.9). Exclusion criteria were PTSD, limited Swedish language proficiency, and prior sick leave exceeding 60 consecutive days during the past three years. Recruitment took place at 22 PHCCs—15 public and 7 private clinics—which were matched into pairs based on organisational features and mental health caseload. Random allocation to the intervention or control group was performed within each pair. At intervention centres, rehabilitation coordinators (RCs) recruited patients, while at control sites, recruitment was

managed by GPs. In total, 135 patients were included, with a final analytic sample of 112 participants (intervention group: n = 54; control group: n = 58).

4.2.3. Intervention content and delivery

Based on the PEO model (66) a structured protocol was developed to enhance early collaboration between the patient, employer, and healthcare services (73). Before implementation, GPs and RCs from intervention sites attended a full-day training session delivered by experts from ISM and the University of Gothenburg. The training included clinical and organisational perspectives on stress-related mental disorders, assessment of work capacity and the framework of the Swedish social insurance system. A central focus was placed on initiating early dialogue with the employer in the RTW process. The intervention model is presented in Figure 3. In total, 76 GPs and 13 RCs completed the training. In addition, GPs in the intervention group had access to consultations with specialist physicians throughout the project, either by email or telephone.

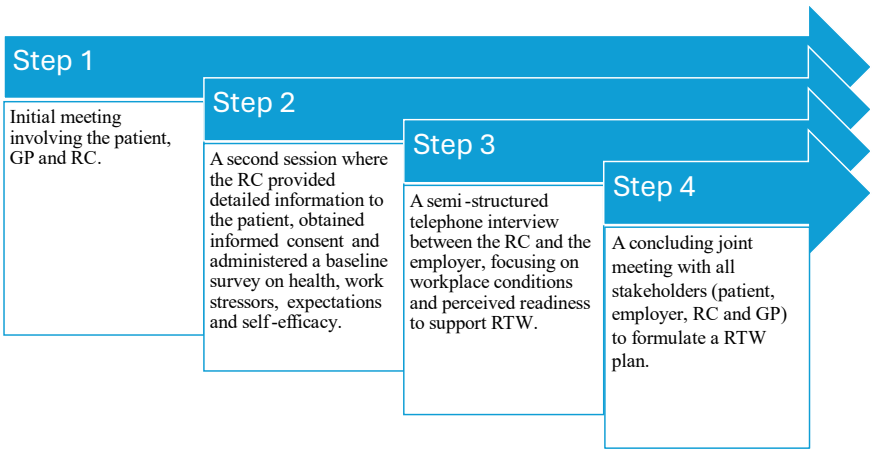

Figure 3. The core intervention followed a four-step model:

GP= general practitioner, RC= rehabilitation coordinator, RTW= return to work

Adapted with permission from Beno et al. BMC Primary Care (2023). The content is similar to the published version but presented here in a revised layout for the purpose of this thesis.

4.2.4. Outcome measures and analysis

The primary outcomes were gross and net sick-leave days, measured at 3, 6, 12 and 24 months after study inclusion. These data were obtained from the MiDAS register maintained by the Swedish Social Insurance Agency. In the Swedish context, sickness benefits are granted in partial increments (25%, 50%, 75% or 100%) depending on the degree of work incapacity. Gross sick-leave days refer to total calendar days with any registered benefit, while net days are adjusted to represent full-day equivalents. Given the non-normal distribution of the outcome data, group comparisons were conducted using the Mann–Whitney U test. Statistical significance was set at $p < .05$, and analyses were performed using IBM SPSS Statistics.

4.3. Study IV

4.3.1. Study design and data sources

This study constitutes a register-based follow-up of a cross-sectional survey, analysing data originally gathered within the framework of a Swedish government evaluation of work-oriented rehabilitation for individuals on sick leave with stress-related mental disorders (74). The evaluation was commissioned by the Social Insurance Committee of the Swedish Parliament and conducted by the Parliament's Evaluation and Research Secretariat in collaboration with Statistics Sweden (SCB) and the Swedish Social Insurance Agency (10).

For the present study, self-reported data from the nationwide questionnaire, distributed by SCB in October 2023 to individuals on long-term sick leave with stress-related diagnoses, was combined with objective register data from the Swedish Social Insurance Agency's MiDAS database. Complementary demographic and occupational information was retrieved from additional national registers (10).

4.3.2. Participants and inclusion criteria

Participants in this study were recruited based on defined inclusion criteria. Eligible individuals were required to be registered residents of Sweden and recipients of sickness or rehabilitation benefits from the Swedish Social Insurance Agency. A new sick-leave period must have commenced in March or April 2023, with the individual still on sick leave in September 2023. Additionally, no sickness or rehabilitation benefits could have been received during the three months immediately preceding the current sick-leave episode. Inclusion was further restricted to those in paid employment and entitled to sickness benefits both at the initial application and in the subsequent months. Exclusion criteria comprised hourly and daily wage workers, students, individuals on parental leave and the self-employed (including

those with mixed employment and self-employment). All participants were covered by the Swedish rehabilitation chain, which prescribes a structured schedule for the assessment of work ability at specified reference points (41).

The questionnaire was administered to all individuals meeting these criteria, regardless of medical diagnosis (N = 10,216). The questionnaire was distributed both online and in paper form, with one initial mailing followed by three reminders. In total, 4,156 responses were received, corresponding to a response rate of 40.7%. For the present study, only respondents on sick leave with stress-related diagnoses, classified according to the International Classification of Diseases, 10th Revision (ICD-10), were included. These diagnoses comprised acute stress reaction (F43.0), adjustment disorder (F43.2), reaction to severe stress (F43.9), and exhaustion disorder (F43.8A), yielding a subsample of 1,425 participants. The final analytical sample consisted of 1,412 individuals who had completed the questionnaire item on workplace adjustments, which constituted the main exposure variable of the study.

4.3.3. Measures

Demographic variables included sex, age, level of educational attainment and occupation. The survey instrument was developed by the Swedish Parliament's Evaluation and Research Secretariat in collaboration with the Swedish Social Insurance Agency and reviewed methodologically by a specialist at SCB. Emphasis was placed on clarity of item formulations, appropriateness of response categories, and overall comprehensibility. The instrument contained 23 items covering support mechanisms, workplace adjustments, rehabilitation initiatives and access to healthcare. For this study, a single item on self-reported experiences of workplace adjustments in the context of RTW was selected. The item was formatted as a multiple-choice question, allowing selection of more than one applicable alternative. The full wording and response options are presented in Table 5.

Table 5. Multiple-choice question about workplace adjustments

What types of workplace adjustments has your employer made to facilitate your return to work?
1. No adjustments were made
2. I was reassigned to a different position or role (temporarily or permanently)
3. I was given modified work tasks (e.g. less stressful or physically demanding tasks)
4. I received support or workload relief from colleagues
5. I was allowed to work during times (or days) that suited me better
6. I was allowed to take more frequent breaks
7. I was given the opportunity to work from home (more than before)
8. I was given the opportunity to work undisturbed or in a secluded space
9. I received guidance or supervision from a manager, mentor or support person
10. I was provided with assistive devices
11. Other adjustment (with the option to provide a free-text description of any additional adjustments).

The content is identical to the manuscript version but presented here in a revised layout for the purpose of this thesis.

4.3.4. Variables and Statistical Analyses

Descriptive statistics were presented using frequencies and proportions. Age was dichotomised (<40 years vs. ≥40 years), and educational attainment was categorised as lower (primary or secondary education) or higher (post-secondary/tertiary education). The primary exposure variable—workplace adjustment—was dichotomised (adjustments vs. no adjustments). Outcome data were derived from MiDAS and comprised gross sick-leave days (total calendar days with registered sickness absence, irrespective of extent) and net sick-leave days (adjusted to full-time equivalents based on compensation levels of 25%, 50%, 75% or 100%). To assess the relationship between workplace adjustments and sick leave durations, multivariable quantile regression was conducted. This approach, as described by Koenker (2001) (75), enables the estimation of conditional quantiles across the outcome distribution without assuming homoscedasticity or normality and is particularly well-suited for skewed data with outliers.

Separate regression models were fitted for gross and net sick leave durations at 6- and 18-month follow-ups, adjusting for sex, age and educational attainment. Results were reported as regression coefficients (B) with 95% confidence intervals across the 10th to 90th percentiles. All analyses were performed using IBM SPSS Statistics, version 22.

5. RESULTS

5.1. Summary of main findings

In the thesis, a coherent picture emerged of RTW after sick leave for stress-related mental disorders as a multifaceted process, with changes and adjustments in the work situation reported by the majority of participants in Studies I, II, and IV. Long-term follow-up showed that two out of three ED patients at the specialist clinic made some form of modification in their work situation, such as changing workplace, work tasks, or working hours. Findings from the qualitative interviews identified factors perceived to facilitate RTW, including organisational preparedness, supportive leadership and the availability of individually tailored adjustments. Although the workplace appears central to the RTW process, the cluster-randomised trial indicated that a structured model for employer involvement in primary health care did not shorten the duration of sick leave compared with treatment as usual. In contrast, findings from the national survey and register-based study suggest that workplace adjustments are associated with shorter sick leave, particularly among individuals with longer absences due to stress-related mental disorders.

5.2. Study I

Among the 217 included individuals, 74% were women and 26% were men. The majority were married or living with a partner. The mean age at the time of initiating care was 43.76 years.

5.2.1 Work-related changes

At the seven-year follow-up, 63% of participants reported having made at least one change in their workplace, work tasks or working hours, with 43% of these having modified more than one aspect of their work situation. The most common adjustments were a change of workplace (47%) and modification of work tasks (42%). A reduction in working hours was reported by 23% and was significantly more prevalent among women, a difference that remained after Holm–Bonferroni correction. No other significant associations were observed between work-related changes and sex, age, educational level or symptom severity. At follow-up, 87% were no longer on sick leave, while 13% remained on full- or part-time sick leave or had been granted a disability pension. Bivariate logistic regression examined associations between sex, age, baseline burnout symptoms and self-reported work changes at the seven-year follow-up. The odds of having reduced working hours were significantly greater for women compared with men (OR = 0.06; 95% CI: 0.008–0.46). In contrast, men were more likely than women to report having changed work tasks (OR = 2.29; 95% CI: 1.15–4.56). No

statistically significant associations were identified between these covariates and changes of workplace.

5.2.2. Associations between stressors and changes at work

This analysis examined whether self-reported stressors were associated with changes at work, using data from 130 participants. Compared with those who made no changes, participants who reported work-related changes were significantly more likely at baseline to have cited workplace stressors such as conflicts, reorganisation, deficient leadership and dissatisfaction with the overall work situation. At the seven-year follow-up, the pattern of reported stressors was largely similar between groups, except that those with no changes at work reported significantly higher stress related to quantitative demands. Regarding non-work-related stressors, relational conflicts were more frequently reported at baseline by those who made changes.

5.3. Study II

Of the 20 participants in Study II, 14 were women and 6 were men. Most held a higher education qualification, and the mean age at the time of the interviews was 49 years. The qualitative analysis generated the overarching theme “A need for a holistic view of the RTW process”, which captured the underlying meaning across participants’ narratives. This theme served as a unifying framework for understanding how RTW after ED was influenced by a range of organisational, managerial and individual-level factors. Three main categories were identified, each comprising two to three subcategories: “The importance of a well-prepared organisation”, “What characterises a good leader?” and “Meeting the needs of each employee” (see Table 6).

Table 6. Overview of main theme, categories, subcategories and quotations associated with successful RTW.

Main theme	**A need for a holistic view of the RTW process**						
Categories	**The importance of a well-prepared organisation**			**What characterises a good leader?**		**Meeting the needs of each employee**	
Sub-categories	Do organisations want to see the "bigger picture"?	Providing structure in work organisation	Fostering a culture of awareness and dialogue	A need for multifaceted and present leadership	Can managers really enable changes?	Ensuring employee influence in the RTW process	Adjustments in working conditions
Examples of quotations	"It's precisely about looking at the workplace and not just the individual."	"Clarity about one's tasks is crucial. There must be time to prepare, reflect and recover. You shouldn't have to be putting out fires all the time."	"It´s important to prevent it from happening in the first place. Take better care of people and don't push them to break down. Don't assume that you should deliver and that you are smart because you work around the clock. This will have consequences. If you know that in advance, it might not have to happen."	"I think that what is important is that a good employer has a, so to speak, better understanding and feeling to find ways to evaluate one's ability earlier."	"A manager who was clear and had the courage to set boundaries for me when I returned to work, and who either defended those boundaries to the team or explained the situation to them. I believe that is crucial."	"You have a dialogue and maybe you´re able to have some start-up time, for the moment it´s like this, and I only do these work tasks."	"If I hadn´t made that change I would probably still be lying in bed constantly."

Category 1: The importance of a well-prepared organisation

Participants emphasised that organisational readiness, manifested through structural clarity, effective communication and a culture of awareness, was vital for successful RTW. Rather than focusing solely on individual coping strategies, they advocated for organisational-level interventions addressing systemic factors. Subcategories highlighted the need for organisations to adopt a "bigger picture" perspective, provide well-defined roles and goals and foster a culture in which managers, human resources (HR) and colleagues possess adequate knowledge of stress-related conditions. This included promoting acceptance, inclusion and open dialogue across all levels of the workplace.

Category 2: What characterises a good leader?

Effective leadership during the RTW process was characterised by presence, empathy, trust-building and active facilitation of workplace adjustments. Participants valued leaders who were engaged in daily procedures, who were able to identify the employees' strengths and limitations and who were proactive in resolving interpersonal conflicts. Empathetic communication, patience and a willingness to adapt work tasks without diminishing employees' perceived competence were central qualities. Managers were seen as pivotal in ensuring that adjustments were implemented and sustained, enabling employees to resume work without excessive pressure.

Category 3: Meeting the needs of each employee

Tailoring the RTW process to individual needs emerged as essential for long-term work sustainability. Participants emphasised autonomy over work location, working hours, pace and work task selection, alongside access to quiet or less distracting environments and the option to work from home. Clear, bounded tasks and the removal of unnecessary duties enhanced a sense of control. Individualised rehabilitation plans, often involving gradual increases in workload, were considered crucial. Many participants described changes in workplace, work tasks or working hours, with such modifications sometimes proving decisive for RTW and maintaining work capacity.

5.4. Study III

The results revealed no significant differences in baseline characteristics, including sex, age, prevalence of stress-related diagnoses or number of sick-leave days prior to inclusion, between the intervention group and TAU. The control group had a lower median number of gross sick-leave days at 6, 12 and 24 months following inclusion in the study; nonetheless, these differences were not statistically significant. It should also be emphasised that gross days do not account for the degree of sick leave on each individual day. When net days were analysed, defined as the number of sick-leave days converted into full-day equivalents, the difference between groups became more pronounced in favour of the control group. At the three-month follow-up, the median number of net sick-leave days was 20 days fewer in the control group compared to the intervention group ($p = 0.031$). This difference increased at six months to 43 fewer net sick-leave days ($p = 0.004$), and by 12 months post-inclusion the difference had increased to 77 days ($p = 0.013$). By 24 months, however, no statistically significant difference between the two groups was observed. Descriptive statistics on gross

and net sick-leave days for both the intervention group and the control group, treatment as usual (TAU), are summarised in Table 7.

Table 7. Comparisons of registered sick-leave days between the intervention group and TAU.

	Intervention				TAU				
Time period	**Mean**	**SD**	**Median**	**Q1;Q3**	**Mean**	**SD**	**Median**	**Q1;Q3**	**p-value**
3 months following baseline, gross days	80	21.2	91	77;92	79	22.68	91	76;93	0.822
3 months following baseline, net days	68	24.64	79	46;90	58	25.3	59	37;78	0.031
6 months following baseline, gross days	141	53.62	172	88;182	124	55.46	133	77;182	0.323
6 months following baseline, net days	112	52.85	126	54;126	85	49	83	43;120	0.004
12 months following baseline, gross days	211	115.04	206	102;310	170	111.96	139	86;243	0.088
12 months following baseline, net days	159	98.4	164	62;224	117	97.78	87	45;141	0.013
24 months following baseline, gross days	265	191.9	235	105;342	234	192.76	167	90;301	0.279
24 months following baseline, net days	201	168.89	173	69;248	172	183.9	112	51;202	0.103

Mann-Whitney Test, SD= standard deviation, Q1;Q3 = first and third quartile.

Table adapted with permission from Beno et al. BMC Primary Care (2023). The content is identical to the published version but presented here in a revised layout for the purpose of this thesis.

5.5. Study IV

5.5.1. Descriptive statistics

The final sample of participants comprised 1,412 individuals, predominantly women, with most aged over 40 and holding a higher educational level. Workplace adjustments had been provided to 80% of respondents, ranging from a single adjustment (25%) to four or more (20%), while 20% reported receiving no adjustments.

5.5.2. Workplace adjustments

Chi-square analyses indicated no statistically significant association between receiving workplace adjustments and sex. However, a significant association was observed for educational attainment, with individuals with higher education more likely to report having received adjustments compared to those with lower education. Among those receiving workplace support, the most frequently reported adjustment was modification of work tasks. A summary of workplace adjustments is presented in Figure 5. Free-text responses were reviewed and, where relevant, recoded into existing categories, while remaining entries typically indicated that return to work was not applicable or involved occupational health services.

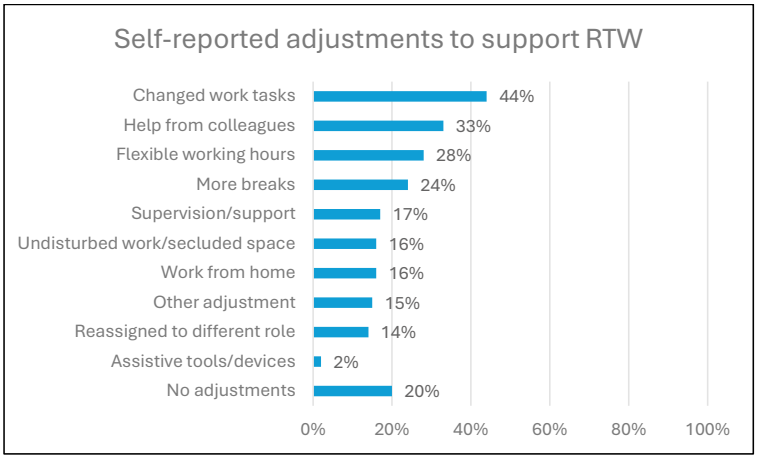

Figure 4. Self-reported workplace accommodations to support return to work among individuals on sick leave with to stress-related mental disorders.

The content is identical to the submitted manuscript version but presented here in a revised layout for the purpose of this thesis.

5.5.3. Workplace adjustments and sick leave duration

At six months, gross sick-leave days showed insufficient variation for meaningful analysis. In contrast, for net sick-leave days, workplace adjustments were associated with consistently fewer days between the 20th and 80th percentiles, with the largest differences observed at the 40th percentile and the median. At 18 months, the pattern for gross sick-leave days was mixed: participants with workplace adjustments had more days at lower percentiles (Q10–Q40) but fewer days from Q50 upwards (see Table 8). For net sick leave-days, no differences were observed below Q40, but from Q40 to Q90, those with adjustments had progressively fewer days, with the strongest effect at Q90 (see Table 9).

Table 8. Quantile differences in gross days between participants with and without workplace adjustments, adjusting for age, sex and level of education.

Percentile	Adjustments at work	No adjustments at work	Percentile difference (95% CI)	p
10	183	162	-21.00 (−35.85; −6.15)	0.006
20	220	198	-22.00 (−40.39; −3.61)	0.019
30	257	225	-32.00 (−52.66; −11.34)	0.002
40	291	266	-25.00 (−47.69; −2.31)	0.031
50	320	328	8.00 (−15.25; 31.25)	0.500
60	348	380	32.00 (4.03; 59.97)	0.025
70	395	461	66.00 (35.54; 96.46)	<0.001
80	461	520	59.00 (24.84; 93.16)	<0.001
90	535	536	1.00 (−1.25; 3.25)	0.383

The content is identical to the submitted manuscript version but presented here in a revised layout for the purpose of this thesis. Group-specific percentiles are based on predicted values for a typical individual, averaged across age, sex, and level of education. B-Coefficient. (95% confidence interval). * p<0.05 was considered as significant. The content is identical to the manuscript version but presented here in a revised layout for the purpose of this thesis.

Table 9. Quantile differences in net days between participants with and without workplace adjustments, adjusting for age, sex, and level of education.

Percentile	Adjustments at work	No adjustments at work	Percentile difference (95% CI)	p
10	102	104	1.75 (−9.61; 13.11)	0.763
20	131	129	−2.00 (−16.29; 12.29)	0.784
30	157	166	9.50 (−5.27; 24.27)	0.207
40	177	196	18.75 (2.25; 35.26)	0.026
50	200	235	35.25 (17.71; 52.80)	<0.001
60	226	294	68.00 (46.85; 89.15)	<0.001
70	258	365	107.50 (84.32; 130.68)	<0.001
80	297	429	131.50 (102.68; 160.32)	<0.001
90	367	520	153.00 (122.85; 183.15)	<0.001

The content is identical to the submitted manuscript version but presented here in a revised layout for the purpose of this thesis. Group-specific percentiles are based on predicted values for a typical individual, averaged across age, sex, and level of education. B-Coefficient. (95% confidence interval). * p<0.05 was considered as significant. The content is identical to the manuscript version but presented here in a revised layout for the purpose of this thesis.

6. DISCUSSION

The main findings of this thesis suggest that RTW for individuals with stress-related mental disorders commonly involves some form of workplace change or adjustment. Individuals treated at a specialist clinic for ED also emphasised that, in addition to individually tailored adjustments, there is a need for a broader perspective on the RTW process, highlighting organisational prerequisites and the important role of managers in facilitating RTW. Although the intervention study involving collaboration between employers and primary health care did not lead to a reduction in sick-leave days among patients with stress-related mental disorders, the findings raise important considerations regarding the effectiveness of such interventions and the contextual factors influencing their implementation. Furthermore, individuals who received workplace adjustments had fewer sick-leave days, suggesting that adjustments provided by employers play a notable role in facilitating RTW.

It is important to bear in mind that RTW for individuals with stress-related mental disorders is not always a straightforward process (38, 54). Rather, it is likely shaped by a complex interplay of multiple factors that interact and influence each other over time (53, 76). Figure 5, which is partly inspired by Loisel et al. (2005) (77) and their description of the arena in work disability prevention, aims to illustrate the domains that can influence RTW in various ways. This includes the overarching societal and political systems that influence the four domains; individual factors (remaining symptoms, coping strategies, readiness for change, and support from family and friends), organisational conditions within the workplace (organisation, managerial role, organisational readiness for change, knowledge, work environment and occupation), healthcare factors (primary health care, occupational health care, general practitioners, rehabilitation coordinators, resources and knowledge), and the insurance system (sick-leave regulations and knowledge) that enable sustainable RTW.

In the discussion, various aspects of this model are addressed, with a particular focus on the workplace support in the RTW process.

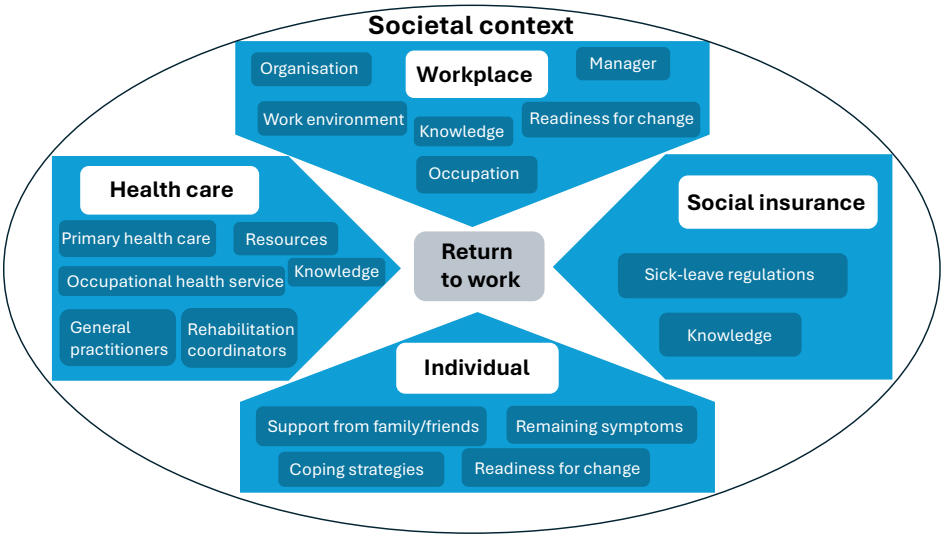

Figure 5. Model of domains of importance for return to work inspired by Loisel et al. (2005)

6.1 Workplace changes and adjustments as prerequisites for return to work

In Studies I, II and IV, participants with stress-related mental disorders reported making some form of work-related change or adjustment in connection with their RTW, indicating the importance of workplace engagement in the RTW process through the provision of such adjustments. These findings are in line with previous research indicating that sustainable RTW after stress-related mental disorders is closely linked to the proactive engagement of the workplace in the RTW process (38, 53-56). Patients with stress-related mental disorders frequently experience long-lasting symptoms (31) that are likely to affect their work capacity (4), and the majority also associate their illness with stressors in the workplace (9, 10). Hence, employers play an important role in the RTW process and can contribute to identifying solutions that enable RTW despite persisting symptoms and reduced functional capacity. Employers in Sweden are legally required to provide work adjustments and rehabilitation in accordance with the Work Environment Act (SFS 1977:1160) and the Social Insurance Agency's rehabilitation framework (39, 41). While these regulations establish a clear responsibility for employers to initiate workplace adjustments, the extent to which this is realised in practice has been less clear. Notably, the findings in Study IV indicate that those who received adjustments had fewer sick-leave days, with the benefit appearing greatest

among individuals with longer periods of sick leave. A possible explanation is that employees on extended sick leave experience a higher symptom burden and greater functional impairment, which may increase their need for workplace adjustments. This aligns with previous findings showing that higher symptom severity predicts longer sickness absence (78, 79) and that employees returning after CMDs often undergo graded RTW or are assigned a reduced workload (80).

In Study I, approximately 40 % of participants reported having changed their work tasks due to their ED, which may be interpreted as workplace adjustments necessary to enable RTW. A crucial question, however, is why no workplace adjustments are offered to some individuals during RTW. Possible explanations include that these individuals were more severely ill and therefore not yet ready for RTW. Another consideration is that the feasibility of implementing adjustments may be sector- and occupation-specific. For instance, in labour-intensive, service-facing settings, particularly in healthcare, staffing constraints, shift patterns and limited task discretion often restrict opportunities for modified duties, flexible scheduling or quieter workspaces, as managers must balance production goals, tight staffing budgets and emergency service requirements (81). The lack of adjustments during RTW could be a possible explanation for the decision to change workplace, alongside previously identified factors such as high workload and effort–reward imbalance (82).

In Study I, nearly half of all participants had changed workplace after seven years due to their ED. Consistently, these long-term adaptation patterns were also observed in a Swedish ten-year follow-up study of 107 former patients with ED, which found that 73 % had changed employer and 31 % had reduced their working hours (83) Patients with ED appear more inclined to change workplace because of their illness than patients with comparable conditions and symptom profiles, such as cognitive impairment and fatigue following brain injury (84) or CMD (85). Compared with the general population in the same Swedish region, where 25.5 % changed jobs over a five-year period (82), the turnover for patients with ED is remarkably higher. The reasons why participants in Study I changed workplace remain unknown. However, the qualitative study contributed to a deeper understanding of the RTW process, highlighting that various adjustments and workplace changes were considered necessary to facilitate RTW. Participants emphasised that changes such as change of work tasks and workplace were central to enabling RTW.

Similar results are confirmed by participants in a Swedish qualitative study, where participants who emphasised that stepwise workplace changes and supportive guidance helped them reclaim confidence and implement necessary adjustments to facilitate RTW (86). More specifically, participants in Study II highlighted tailored adjustments such as autonomy to control work tasks, work phase and flexibility in when and where the work is performed. These adjustments are in line with those reported in Study IV, further highlighting the importance of workplace adaptations during RTW. Other studies point in the same direction. A systematic review and meta-analysis by Nowrouzi-Kia et al. (2023) of 20 workplace-based interventions found that combining graded RTW with task modification consistently shortened sickness-absence duration across CMDs, including stress-related mental disorders (53), while an earlier meta-analysis by Mikkelsen et al. (2018) highlighted the value of multicomponent programmes that integrate clinical and organisational elements to support RTW (54).

6.2. The role of managers and the workplace in return to work

Study II revealed that participants with ED perceived the workplace as important for their RTW, highlighting the role of managerial support and organisational factors. Managerial engagement was identified as an important sub-category in the pattern identified from the interviews; several aspects of the manager's role in the RTW process were highlighted. Among these were managers' knowledge of rehabilitating individuals with stress-related mental disorders, their understanding of which adjustments may be beneficial and their ability to monitor and evaluate the RTW process on a regular basis. This is in line with the findings of Eskilsson et al. (2021), who showed that managers participating in a structured workplace intervention for employees with stress-related mental disorders developed increased knowledge of rehabilitation, identified suitable workplace adjustments and regularly monitored and revised RTW plans, capacities that enabled them to better support employees' RTW (87). Importantly, research indicates that managers' ability to offer such support and implement effective workplace adjustments is dependent on organisational preconditions, including access to resources, time, support functions and clear leadership structures (88), which may also vary across gendered organisational contexts (89). Observations from clinical practice also indicate that managers are sometimes constrained by organisational factors that limit their ability to make further adjustments. Active communication between the employee and the manager was also found to be essential for identifying factors that are significant to the individual. Previous research supports this finding, showing that clear dialogue between

manager and employee enables timely identification of emerging barriers and alignment of expectations (86, 90). Based on clinical experience, a lack of communication is sometimes apparent during follow-up meetings between the physician, the manager and the employee on sick leave. Although the employer may have implemented several adjustments and considers their responsibility fulfilled, inadequate attention to the employee's stated needs can make these adjustments less effective in facilitating RTW.

Moreover, colleagues also seem to play an essential role in the RTW process. In Study II, participants highlighted the importance of collegial support and a shared understanding among co-workers during their RTW process. Consistently, Study IV identified assistance from colleagues as one of the most commonly reported workplace accommodations during RTW. These findings align with prior research showing that co-workers are influential actors in the RTW process, that low co-worker support predicts delayed or incomplete work resumption, and that managers frequently rely on informal strategies to mobilise peer support when formal procedures fall short (91, 92).

An interesting finding in Study II was that participants noted that many colleagues were exposed to the same unfavourable working conditions, underscoring the importance of addressing organisational factors to achieve a sustainable RTW. Nevertheless, despite widespread recognition of organisational-level issues, most workplace interventions aimed at preventing stress-related mental health problems continue to focus primarily on the individual (93, 94).

6.3. Perspectives on intervention strategies to facilitate return to work

Study III aimed to evaluate a novel approach to enhance collaboration between healthcare providers and employers in facilitating RTW for patients on sick leave with to stress-related mental disorders. It was hypothesised that better healthcare–employer collaboration and increased employer support, factors previously shown to promote RTW (54) would shorten sick-leave duration. Contrary to expectations, however, the intervention group experienced longer sick-leave periods than controls. While this may indicate that the intervention was ineffective, it also highlights the need to examine the mechanisms and contextual factors that influence whether the intervention can deliver its intended effects. Viewed through the framework for developing and evaluating complex interventions proposed by Skivington et al. (2021), this illustrates how the interaction between programme theory, context, and implementation may have constrained the intended mechanisms of change in the primary care

setting (95). Organisational readiness for change at PHCCs, including leadership engagement, staffing levels, and structural support, may have affected the results. These contextual preconditions were examined as part of the broader PRIMA project, of which Study III was one component, and similar studies have noted that organisational context can significantly influence intervention success (96, 97). Moreover, the impact of the intervention likely depends on whether structured dialogue culminates in concrete, enacted workplace adjustments, that is, whether agreed adjustments were implemented and sustained.

Participants in the intervention group received the core element of the PRIMA programme, namely a structured meeting with the employer. However, no systematic data were collected on the number of meetings, the extent to which proposed adjustments were implemented or the level of managerial involvement. It therefore remains uncertain to what extent variations in delivery and contextual adaptation, as highlighted by Skivington et al. (2021) (95), may have shaped the intervention effects. Patient recruitment proved to be a major challenge, a common issue in intervention studies. Previous trials reported recruitment shortfalls due to constraints in time, awareness, or engagement among staff (98, 99). Dialogues with participating units revealed several barriers: some physicians expressed scepticism about the F43 diagnosis, others lacked time or interest in research, and even highly motivated RCs struggled to recruit patients. These observations are consistent with earlier reports that practical workload and communication issues in primary care can hinder trial enrolment (98, 99). A few less successful recruitment sites were located in socioeconomically disadvantaged areas, which may have influenced both the case mix and research capacity: stress-related exhaustion tends to be more prevalent among highly educated individuals (29), and overburdened clinics in poorer areas may find it especially hard to engage with additional intervention protocols. Other primary care studies have reported similar difficulties in recruiting and implementing interventions for stress-related mental disorders (97, 100).

Few intervention programmes have demonstrated clear positive effects on RTW rates among patients with stress-related mental disorders (32, 53). This aligns with a recent scoping review finding that most RTW interventions for mental health conditions are complex, resource-intensive, and show only modest effects compared with TAU, although programmes combining clinical treatment with workplace components appear most promising (101). A major challenge with control groups receiving TAU is that the content of TAU is seldom clearly defined (102). It is possible that differences between the intervention and TAU were

relatively small, and in the study setting, TAU may have varied substantially across healthcare settings.

Nevertheless, there are interventions that show promoting faster RTW and reducing sickness absence (58, 103, 104), although effects on full RTW remain inconsistent and further research, particularly at the organisational level, is needed (105). These interventions were delivered within OHS, a context quite different from primary care. OHS typically maintain closer and more direct contact with employers, whereas primary care staff are often overstretched and must address a broad array of health issues. Such contextual differences likely contributed to the challenges faced in implementing a similar employer-involvement approach in primary healthcare.

6.4. The role of gender in return to work outcomes

Although no official prevalence statistics exist for stress-related mental disorders, sick-leave data consistently indicate a pronounced gender disparity, with women more frequently on sick leave with stress-related mental disorders (41). Other gender aspects emerge in Study I, showing that women were more likely than men to reduce their working hours upon returning to work, whereas men more frequently reported changes in their work tasks. However, these findings should be interpreted with caution, as the sample size was small and comprised ED patients from a specialist clinic, the majority of whom had higher education. Symptom burden appears similar for women and men with ED (29), and attitudes towards sick leave do not differ substantially between sexes (106). Hence, other explanations for the observed differences in reduced working hours should be considered beyond symptom burden and attitudes. One possible explanation is that women experience a greater imbalance between work and domestic responsibilities, which may affect the RTW process. Previous studies have shown that women in Sweden bear a disproportionate share of unpaid domestic responsibilities, resulting in a so-called ‘double burden’ of paid and unpaid labour (107, 108), a trend also observed in other OECD countries (109). In an interpretive description study, Coutu et al. (2020) describe how women more often experience this double workload, which is associated with challenges in the RTW process (52). Another explanation for why women more often reduce their working hours upon RTW could be that opportunities for flexibility and workplace adjustments are more restricted in female-dominated sectors. Occupations in which women are overrepresented are typically characterised by high emotional demands and continuous expectations of empathy and caregiving, combined with limited work-time

autonomy, which reduces opportunities for recovery and makes individual adjustments difficult to implement (110-112).

6.5. Results in relation to theoretical frameworks

RTW after ED may be viewed as a process of restoring balance between excessive job demands and available resources. Persistently high demands, such as quantitative workload, interpersonal conflict or deficient leadership, without a corresponding increase in resources, increase the risk of ongoing exhaustion and unsuccessful RTW. By contrast, workplace resources, including opportunities to modify work tasks, reduce working hours, improve leadership quality or receive social support, may help protect against relapse and facilitate sustainable RTW even when residual symptoms remain. The results of Study I showed that individuals who initially reported workplace conflicts, organisational changes, poor leadership and overall dissatisfaction were more likely to make changes at work, whereas those who made no changes reported persistently high work demands, possibly increasing the risk of recurrent sick leave. The JD–R model (65) thus offers a valuable framework for facilitating RTW among patients with ED by emphasising the need to identify and mitigate excessive job demands while concurrently enhancing key resources such as workplace adjustments, managerial support and clearly defined roles.

Study III was designed according to the PEO model (66), which emphasises that occupational performance results from the dynamic interaction between the individual, the environment and the work tasks. Within this framework, the intervention sought simultaneously to strengthen the individual dimension (through GP and rehabilitation coordinator training and assessment of the patient's health and work ability), the environmental dimension (by structured employer contact and meetings to plan workplace adjustments) and the occupational dimension (mapping work tasks and, where possible, offering adjustments). The PEO model can provide a useful framework for the RTW process by recognising multiple domains that, both individually and collectively, may influence an individual's ability to RTW.

7. METHODOLOGICAL CONSIDERATIONS

Exploring the RTW process among individuals with stress-related mental disorders and the relationship with factors at the workplace poses several methodological challenges. The heterogeneity within this patient group, with various factors potentially influencing the RTW process, needs to be taken into account. Variations in symptom severity and comorbidity with associated conditions, such as depression and anxiety, may be of relevance. The workplace context, including sectoral differences, organisational prerequisites and varying levels of knowledge concerning stress-related mental diagnoses and rehabilitation, may influence outcomes. Another factor is legislation concerning the employer's rehabilitation responsibilities and the structure of the sickness insurance system in Sweden

This section discusses methodological aspects related to the chosen methods used to answer the research questions, as well as the methodological challenges associated with a heterogeneous patient group and the range of potential confounders that may have influenced the results, alongside the challenges of selecting and evaluating RTW outcomes. In this thesis, multiple methods were employed to capture different perspectives on the RTW process among individuals with stress-related mental disorders, thereby strengthening the overall credibility of the findings.

7.1. Sample characteristics

The study populations were characterised by a predominance of women and participants with higher education. While this distribution may initially appear skewed, registry data from the Swedish Social Insurance Agency indicate a similar demographic pattern among individuals on sick leave for stress-related diagnoses (2). Therefore, although male and lower-educated employees remain underrepresented in the samples, the cohorts can be considered broadly representative of the population affected by stress-related mental disorders in Sweden.

7.2. Methodological considerations regarding self-reported data

In three of the four studies (Studies I, II and IV), data were collected partly through self-reported questionnaires or qualitative interviews, enabling unique insights into workplace changes (Study I), lived experiences of RTW (Study II) and workplace adjustments (Study IV). However, reliance on self-reports introduces well-documented limitations, such as recall bias in retrospective designs, social desirability bias and subjective interpretation of survey items (113, 114). The accuracy of responses may further be influenced by factors such as

symptom burden, health literacy and survey fatigue, which may result in under- or overestimation of experiences. Validated rating scales such as the SMBQ (67, 68, 115) and HAD (116, 117) were used for self-assessment of symptoms. However, as no validated instruments exist for measuring work-related changes (Study I) and workplace adjustments (Study IV), these items were not validated. The use of non-validated questionnaires entails a risk of measurement error and uncertainty in interpretation, as the instrument's reliability and validity have not been established. Consequently, the results should be interpreted with caution, as they may not accurately reflect the intended constructs or be generalisable to other populations.

Taken together, despite their inherent limitations, self-reports remain indispensable for capturing the subjective and multifactorial aspects of RTW processes (113).

7.3. Validity, generalisability and trustworthiness

Across the four studies, validity and generalisability varied depending on design and data sources. In Study III, the cluster randomised controlled trial, internal validity was strengthened by randomisation, which reduced systematic bias and allowed causal evaluation of structured employer involvement (118). However, variation in intervention delivery across primary care centres and the small sample size limited validity by reducing the precision, power and robustness of causal inference (119). Another limitation is the absence of baseline symptom measures for the control group, which restricts the ability to determine initial comparability between groups and may have affected the robustness of the outcome interpretation (119). The possibility that the control group received similar support constitutes a classic threat to internal validity through diffusion of treatment (119). Such heterogeneity also constrains external validity, as inconsistent delivery limits transferability to other settings (118, 119).

In Study I, validity was restricted by the cross-sectional and retrospective design, with self-reported workplace changes collected seven years after treatment. Temporal order could not be determined, and recall bias may have influenced responses (119). However, non-response analyses showed no significant baseline differences in age, sex, symptom burden or stress exposure, supporting internal validity by reducing selection bias. Construct validity was also limited, as workplace changes were not assessed with a validated instrument, unlike symptoms measured by established scales.

In Study IV, internal validity was strengthened by prospectively collected register data at 6 and 18 months, providing objective outcomes and minimising recall bias (119). However, workplace adjustments were assessed once, via a single non-validated survey item, and potential confounders such as symptom severity, comorbidity, and occupational factors were not controlled for, which limits causal interpretation (119). In addition, no formal non-response analysis could be performed in Study IV, which constitutes a limitation regarding representativeness. To reduce potential non-response bias, SCB performed calibrated weighting adjustments (120).

In Study II, trustworthiness was addressed in line with established criteria for qualitative content analysis (71, 121, 122)**.** Credibility was supported by a systematic interview guide, double coding and consensus discussions, while dependability was enhanced through a consistent analytic framework (71, 122). Transferability was strengthened by purposeful sampling to achieve variation in demographic and occupational factors, and authenticity by using representative quotations (121). Limitations include retrospective recall and potential researcher bias (71).

Taken together, generalisability differed across studies. Findings from Studies I and II are mainly transferable to similar specialist settings, Study III to Swedish primary care and Study IV to national-level contexts. The thesis offers contextually grounded knowledge relevant to Sweden and similar welfare systems, though applicability to substantially different settings should be interpreted with caution.

8. ETHICAL COMMENTARY AND REFLECTIONS

All studies included in this thesis were conducted in accordance with the Declaration of Helsinki and approved by the regional ethics review boards in Sweden. Written informed consent was obtained from all participants prior to participation, and they were assured of their right to withdraw from the study at any time without consequences. Given the sensitive nature of the topic, stress-related mental disorders, sickness absence and return to work, particular attention was paid to maintaining participants' confidentiality and psychological safety throughout the research process.

Participants in Study I were former patients at a specialist clinic, and their decision to take part in the study may have been influenced by the perception that participation could be of importance for accessing care in the future. Participants were informed that they could withdraw their consent to participate in the study at any time.

The qualitative study (Study II) involved retrospective interviews focusing on participants' long-term experiences of return to work following stress-related exhaustion. Although such interviews carry the potential for emotional distress, several steps were taken to minimise harm. The interviews were conducted by an ergonomist with extensive experience working with patients with stress-related mental disorders and familiar with discussing potentially sensitive topics. Participants were informed beforehand that they could decline to answer any question or stop the interview at any time. Most participants expressed appreciation for the opportunity to reflect on their experiences, and no adverse incidents were reported. Nevertheless, the dual role of the interviewer as both a clinician and researcher affiliated with the specialist clinic requires ethical reflection. Although measures were taken to ensure a non-hierarchical and supportive atmosphere, there remains a potential for perceived power asymmetry. Reflexivity and transparency were employed to mitigate this concern during both data collection and analysis.

In Study III, involving a randomised controlled intervention in primary care, ethical considerations included the allocation of patients to intervention or control groups without the possibility of blinding. While this may raise concerns regarding perceived fairness or expectations, the intervention consisted of enhanced coordination of care that did not carry medical risks, and participants in the control group received treatment as usual, in line with current clinical standards. Moreover, the study was designed in close collaboration with

healthcare providers to ensure feasibility, relevance and ethical appropriateness in routine clinical settings.

A broader ethical reflection relates to the responsibility of researchers studying vulnerable populations. Individuals with ED often face stigma, economic strain and uncertainties related to their future work capacity. It was therefore imperative that the research was conducted with respect, empathy and a commitment to producing knowledge that could ultimately benefit patients, healthcare professionals, employers and policymakers. This includes striving to represent the participants' voices accurately and to contextualise findings within the broader systems that shape work and health.

Finally, while the focus of this thesis is on RTW and workplace factors, care was taken not to assign individual blame for prolonged sick leave or unsuccessful work reintegration. Instead, the studies sought to highlight structural and organisational barriers, as well as to identify constructive pathways for RTW support. Ethical research in this field requires a continuous balance between scientific rigour and human sensitivity, a principle that guided all stages of this work.

9. CONCLUSIONS

The findings in this thesis indicate that most participants on sick-leave with stress-related mental disorders make some form of work-related change or adjustment during RTW. Workplace adjustments were associated with fewer sick-leave days, highlighting the potential importance of employer involvement in facilitating such adjustments to support RTW. Based on the experiences of individuals with previous ED adopting a broader, more holistic perspective on the RTW process may include exploring the organisational conditions to which employees return, considering potential needs for organisational adjustments, and clarifying how managers can support employees through tailored workplace adjustments. It may also be valuable to identify and consider underlying workplace stressors, as these might be related to the changes individuals make as part of their RTW. Women tended to reduce their working hours upon RTW, suggesting that a gender-aware approach may be important.

The intervention involving collaboration between employers and primary health care did not lead to a reduction in sick-leave days among patients with stress-related mental disorders. This may indicate that the intervention itself was not sufficiently effective, but it also underlines the need to reflect on the contextual and organisational factors that may have limited its impact.

Taken together, this thesis offers a valuable contribution to the understanding of the multifaceted RTW process following stress-related mental disorders, highlighting the need to consider individual, organisational, and contextual perspectives on workplace support.

10. FUTURE PERSPECTIVES

The thesis concludes that changes in working life, such as changing workplace, modifying work tasks or implementing adjustments during the RTW process, are common among patients with stress-related mental disorders. The underlying reasons for such changes—such as changing workplace or reducing working hours following stress-related illness—as well as whether these occur more frequently in this patient group compared to general labour market mobility, remain important areas for further research.

Previous studies have typically measured RTW outcomes in terms of the number of sickness absence days. Although this provides valuable information on whether individuals RTW, it does not reflect the sustainability of RTW or how well individuals function in working life. It would therefore be valuable to examine outcomes such as relapse into sickness absence, functional work capacity and work productivity in order to provide a more nuanced understanding of RTW. Moreover, future research should include a gender perspective, as women are overrepresented in sick leave due to stress-related mental disorders. It is important to examine whether differences in workload and working conditions, as well as more limited opportunities for workplace adjustments in female-dominated occupations, contribute to gender disparities in RTW outcomes.

Another interesting area for future research is to examine organisational prerequisites for changes to facilitate sustainable RTW for people with stress-related mental disorders, and whether the preconditions for implementing changes differ across sectors. Particular attention is warranted in public-facing settings such as schools, health and social care, where operational constraints can limit flexibility and may call for more tailored, sector-specific solutions.

11. IMPLICATIONS

The findings of this thesis suggest that both healthcare providers and employers may benefit from actively identifying and evaluating potential workplace changes and adjustments to facilitate RTW following stress-related mental disorders. Complex interventions with collaboration between primary health care and employers may not be effective to reduce sick-leave.

Recommendations to employers

1. Identify and address underlying work-related stressors (e.g. excessive quantitative or emotional demands, role ambiguity, deficient supervisory support) and, together with the employee, determine which concrete workplace adjustments are needed (e.g. change of work tasks, reduced workload, flexible working hours, work environment adjustments). A gender-aware approach may be useful ensuring that viable alternatives and tailored workplace adjustments are offered so that reduced working hours do not become the default solution for women.
2. Identify managerial preconditions: visible, empathic leadership with clear mandate, resources and accountability to implement and review adjustments. At an organisational level, having an employee on sick leave with stress-related mental disorders should trigger review of structural factors (e.g. work design, staffing, communication routines and leadership prerequisites). Workplaces can thereby create conditions that better support employees' sustainable RTW and prevent recurrent sick leave and turnover.

Recommendations for healthcare

1. Identify underlying work-related and non-work-related stressors and evaluate how these stressors affect work ability, and if possible, identify tailored workplace adjustments (e.g. change of work tasks, reduced workload, flexible working hours, work environment adjustments) that can facilitate RTW. A gender-aware approach is advisable, with proactive suggestions of viable alternatives and tailored adjustments to avoid reliance on reduced working hours by default, especially among female patients.
2. Communicate the proposed adjustments to the employer. Recommendations may be shared in the medical certificate, through liaison by the RC, or at a coordination meeting between the physician, the patient and the employer (with the Swedish Social Insurance Agency, sometimes present and/or convening the meeting).

The effectiveness of the adjustments should be reviewed at follow-up consultations, and any revisions should be communicated to the employer, for example, via an updated medical certificate.

12. USE OF GENERATIVE AI

ChatGPT (OpenAI, GPT-5 version) was used as a language support tool during the writing process of this thesis. The software assisted with grammar and style refinement in English, minor reformulations for clarity, and consistency in terminology. It was also used to verify linguistic accuracy in translations from Swedish to English.

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