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IBBIS

Study Protocol: *Integrated mental health care and vocational rehabilitation to improve return to work rates for people on sick leave because of common mental disorders (IBBIS)*

Protocol template by Copenhagen Trial Unit aligned with the SPIRIT statement

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ABSTRACT

Background: Mental illness has an estimated financial burden on the Danish economy of 3, 4 percent of the Danish GDP. Common mental disorders cause the largest financial burden because of the high prevalence and long-term sick leave. Furthermore, unemployment is also a risk factor for poor mental health. Thus, it is crucial to help people on sick leave due to common mental disorders return to work and reduce the risk of prolonged sickness absence. People on sick leave need help from various actors in the process of returning to work: health care providers, vocational rehabilitation services, the work place and often relatives are important. The IBBIS[1] intervention is designed to provide coherent and coordinated mental health care and vocational rehabilitation services that improve the process of returning to work. The integrated intervention is provided by a community-based, multi-disciplinary team.

The IBBIS project consists of 6 studies. *Two RCT studies* assess if an integrated mental health care and vocational rehabilitation intervention for recipients of sick leave benefit with common mental disorders help people return to work faster than services as usual. *The Mental Health Assessment study* examines the effect on vocational status after IBBIS mental health assessment, compared to standard GP assessment. *The Process Evaluation study* aims to evaluate the implementation of selected processes in the IBBIS interventions. *The Cost-effectiveness Study* provides an economic cost-effectiveness evaluation of the IBBIS intervention. *The Predictors of return to work Study* aims to examine factors at baseline, which predicts return to work.

Methods: *The RCT studies* are designed as two three-armed investigator-initiated multi-centre parallel superiority trials*:* RCT 1 for people with generalized anxiety disorder, panic disorder, social phobia or depression, and RCT 2 for people with stress-related disorders. The three-armed RCTs are set up to compare the effectiveness of 1) standard mental health care and vocational rehabilitation services, 2) IBBIS stepped mental health care and standard vocational rehabilitation 3) IBBIS *integrated* mental health care and vocational rehabilitation. The primary outcome is the return to work rate at 12 months, and secondary outcome measures are disease severity, work proportion, recurrent sickness absence, work- and social functioning. Eligible participants are people on sick leave for minimum four weeks because of depression, anxiety, distress, adjustment disorder**,** exhaustion disorder in Denmark. Participants will be recruited from Danish vocational rehabilitation centres (Jobcenters) in four municipalities from April 1st 2016 to March 31 2018. A total of 594 participants will be included into each RCT.

In *The Mental Health Assessment study*, an intervention cohort, consisting of those who have been assessed by the IBBIS team but who do not receive IBBIS treatment, is compared to a control cohort, consisting of people eligible for referral to IBBIS assessment but who is not offered this. *The process evaluation study* will address the implementation of two core elements from the IBBIS intervention: 1) Integration of services through relational coordination between professionals in the IBBIS team 2) Participant involvement through shared decision-making at the round-table meetings. *The Cost-effectiveness study* calculates the cost-effectiveness of the IBBIS interventions compared to standard interventions using a standard cost-benefit formula. *The Predictors of return to work Study* consists of a structured literature review on predictors of return to work, and an analysis of predictors of return to work in the IBBIS sample.

Discussion: The studies will contribute with knowledge about the effect and implementation of integrated vocational and health care interventions, and prevention of recurrent sickness absence among people with depression, anxiety and stress related disorders in a Scandinavian context. If

[1] Da.: ”**I**ntegreret **B**eskæftigelses- og **B**ehandlings**I**ndsats til **S**ygedagpengemodtagere”

the effect on return to work is improved with the new interventions, this study can contribute with new knowledge on shared care models between health care and vocational rehabilitation services in a Scandinavian Welfare system.

DANISH BSTRACT

(this pdf document is rendered for upload on clinicaltrials.org, where only English language is allowed – the version with Danish abstract can be collected through corresponding with the authors or by following this link).

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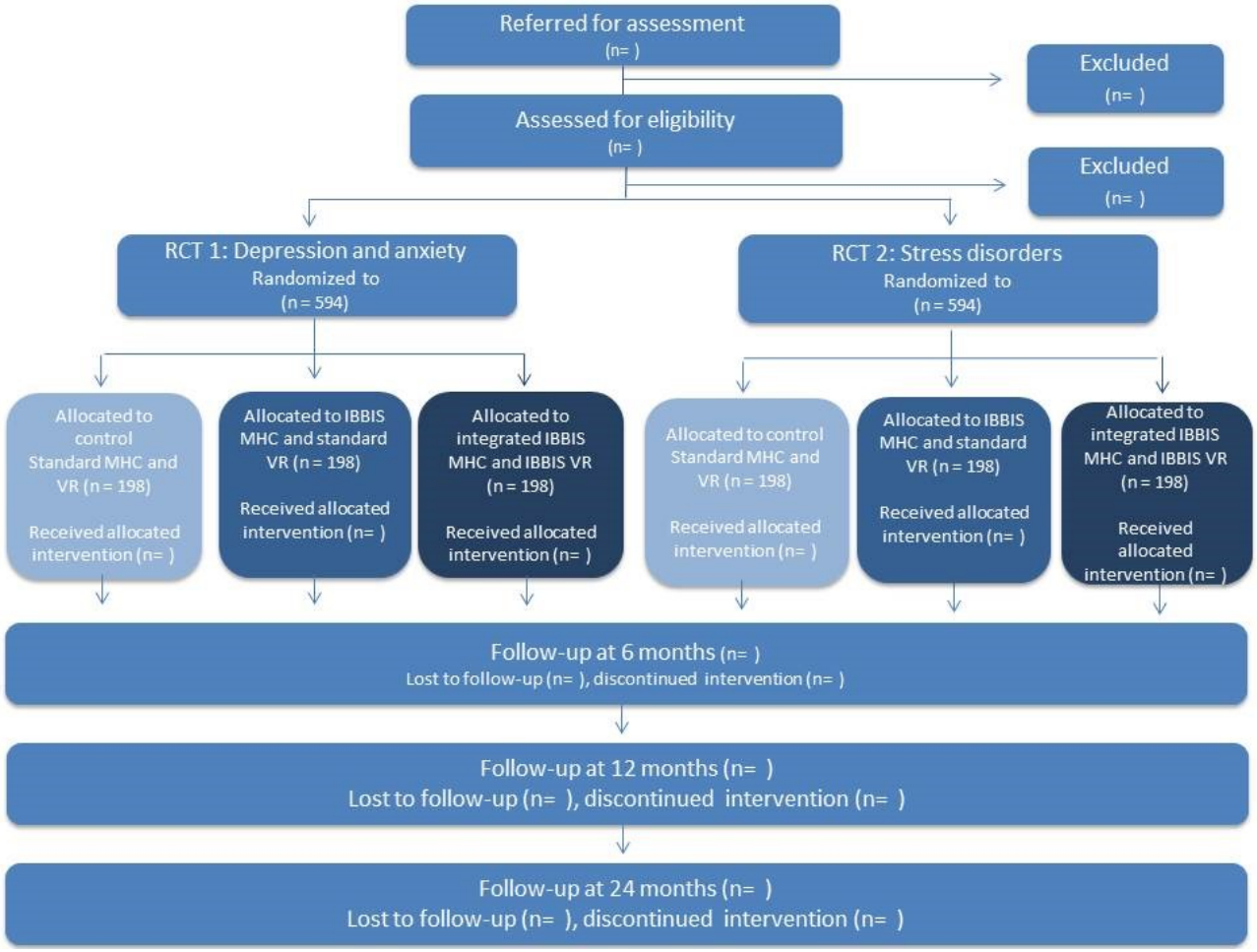
TRIAL FLOW CHART

Figure 1: Trial flow Chart



ADMINISTRATIVE INFORMATION

SPONSOR

Mental Health Services (RHP, Da.: Region Hovedstadens Psykiatri) in the Capital Region of Denmark and the Danish Agency for Labour and Recruitment (STAR, Da.: Styrelsen for Arbejdsmarked og Rekruttering) have established a horizontal cooperation to conduct project IBBIS. The project is financed with DKK 38.102.321 by pool funds administrated by the Danish Agency for Labour and Recruitment. Furthermore, RHP and STAR have established collaboration with four municipalities in order to execute the trials.

Contact Danish Agency for Labour and Recruitment (STAR):
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TRIAL SITES

Referrals and delivery of the IBBIS interventions will take place at Mental Health Center Copenhagen in RHP and in these four municipalities:

- Copenhagen City Municipality
- Gentofte Municipality
- Gladsaxe Municipality
- Municipality of Lyngby-Taarbæk

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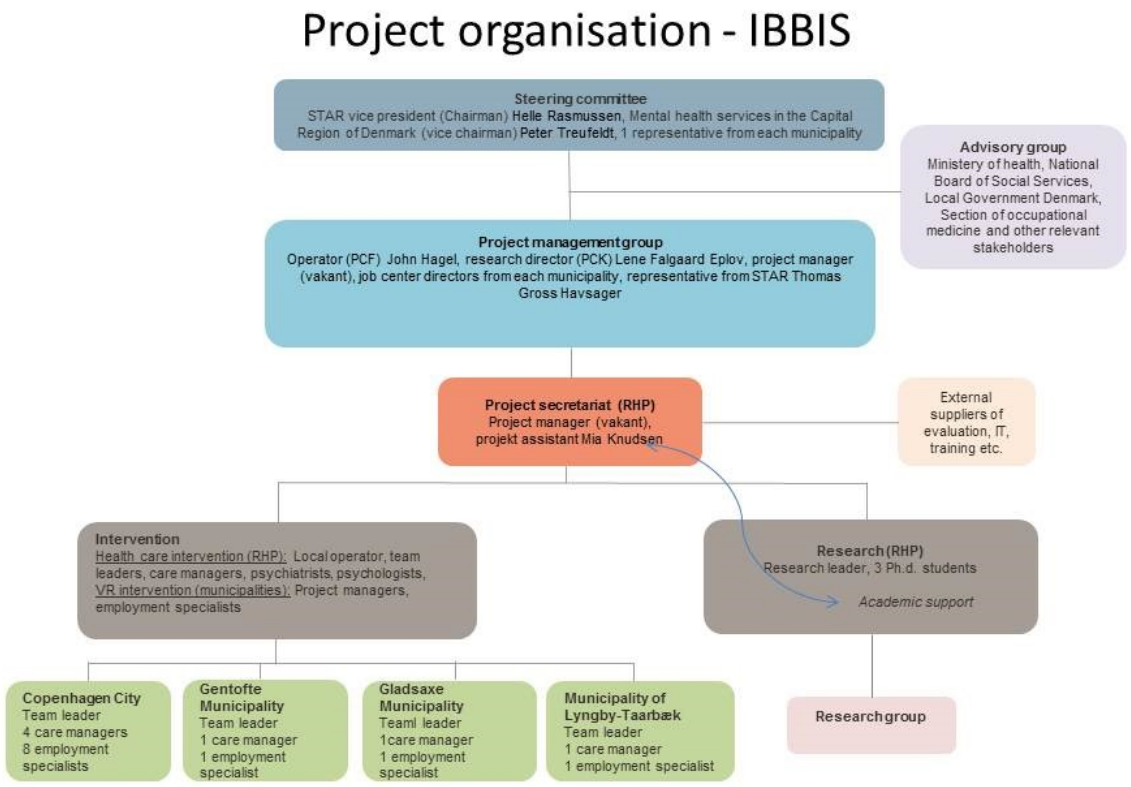
PROJECT ORGANISATION

Figure 2: Project organisation - IBBIS



LIST OF ABBREVIATIONS

Abb	Meaning	Translation, if applicable
ASRS	Adult Self Rating Scale	
BAI	Bech Anxiety Inventory	
BDI	Bech Depression Inventory	
CBT	Cognitive Behavioural Therapy	Kognitiv adfærdsterapi
CMD	Common Mental Disorders	
GP	General practice	Almen praksis
IBBIS	Integreret Behandlings- og BeskæftigelsesIndsats til Sygedagpengemodtagere	Integrated mental health care and vocational rehabilitation for people on sick leave
IPS	Individual Placement and Support	
MHC	Mental Health Care	
MINI	Mini International Neuropsychiatric Interview	
MMSE	Mini Mental State Examination	
OECD	Organisation for Economic Co-operation and Development	
PSS	Percieved Stress Scale	
RHP	Region Hovedstadens Psykiatri	Mental Health Services - Capital Region
STAR	Styrelsen for Arbejdsmarked og Rekruttering	Danish Agency for Labour and Recruitment
TAU	Treatment As Usual	Standardbehandling
VR	Vocational Rehabilitation	Beskæftigelsesindsats

1 INTRODUCTION

1.1 COMMON MENTAL DISORDERS AND SICK LEAVE

Annually, the total cost of sick leave due to mental health issues attains an estimated level equal to 3,4 percent of Danish GNP (OECD, 2013). It is reported that 20 % of the Danish population between 18-65 years, fulfil the criteria for a mental health disorder according to ICD-10, and three quarters of this prevalence is constituted by so called common mental disorders: including depression, anxiety, distress, adjustment disorder, and exhaustion disorder (OECD Publishing, 2012). During the occurrence of these disorders impaired social and occupational functioning are seen, e.g. problems with social interaction in occupational contexts, conducting complex cognitive tasks and completing tasks with a percieved imminent deadline (D. A. Adler et al., 2006; Wittchen, 2002).

OECD (Organisation for Economic Co-operation and Development) estimates that 30 % of the unemployed and 45 % of disability pensioners in Denmark fulfil the criteria for an ICD-10 mental health disorder, and that the corresponding figures among receivers of cash benefit [2] and sick leave benefit are 55 % and 70 %(OECD, 2013). According to the Danish National Health Authorities, anxiety and stress conditions was the cause of 11 % of disability pensions from 2010 to 2012 (OECD, 2013). Common mental disorders causes the largest financial burden because of the high prevalence (Harvey, Henderson, Lelliott, & Hotopf, 2009; OECD, 2013) and long-term sick leave, and furthermore, unemployment is a risk factor for poor mental health (Wanberg, 2012).

The severity of symptoms is an established predictor of return to work for depressed people (Dewa, Chen, Chau, & Dermer, 2011; S. E. Lagerveld et al., 2010; Nieuwenhuijsen, Verbeek, de Boer, Blonk, & van Dijk, 2006). It may be possible to shorten duration of sick leave by providing better and more systematic detection and treatment options for people on sick leave because of depression and anxiety (J. Christensen & Dürke, 2012). Detection and treatment of depression and anxiety in primary care is suboptimal in Denmark according to the Danish Association of Psychiatrists and the Danish Health Authority (Danish Health and Medicines Authority, 2007a, 2007b; Dansk Psykiatrisk Selskab, 2001; Dansk Psykiatrisk Selskab & Dansk Selskab for Almen Medicin, 2004). Symptom reduction is, though, by no means the only important factor in the process of returning to work (Hees, Koeter, & Schene, 2012) and improved treatment have not shown convincing results on improving return to work rates (Nieuwenhuijsen et al., 2014) for people with depression. Several studies have investigated the effect of psychological interventions on return to work after depression, and the evidence is somewhat mixed. Three studies show moderate quality evidence that online or telephone cognitive behavioural therapy (CBT) show greater reductions in sick leave absence than usual care (Bee, Bower, Gilbody, & Lovell, 2010; Hollinghurst et al., 2010; McCrone et al., 2003). Nieuwenhuijsen concludes that work-directed interventions should be added to treatment interventions to improve vocational recovery for depressed people (Nieuwenhuijsen et al., 2014). Work-directed interventions address the barriers related to work either by adjusting specific factors that constitute a challenge at work (direct support) or by helping the individual cope with the possible barriers to return to work (indirect support) (Nieuwenhuijsen et al., 2014).

Personal and work-related factors probably play an important role in the trajectory of return to work (Hees et al., 2012; Nielsen et al., 2012), and the individual's vocational recovery is most likely influenced by other actors then the health care care professionals: The employer, the colleagues, social insurance office, and vocational rehabilitation services. In Denmark, the last two are governed by the same public office, called *job centres*. There appears to be an unfortunate lack of coordination

[2] Cash benefit: Da.: "Kontanthjælp"

between the health care system and social insurance offices in Scandinavian countries (OECD, 2013). This can cause conflicting requirements, and goals and a feeling of confusion, and uncertainty for the individual on sick leave at a time where the individual lacks control and certainty (Andersen, Nielsen, & Brinkmann, 2012; Mikkelsgård, Granerud, & Høye, 2014). The lack of coordination constitutes a missed opportunity to detect cases of depression and anxiety (J. Christensen & Dürke, 2012), and the OECD suggests that mental health care services and vocational rehabilitation services should be coordinated to a larger degree (OECD, 2013).

Evidence on well-described integrated mental health and vocational rehabilitation interventions is scarce. The Individual Placement and Support (IPS) is an intervention with a strong emphasis on integration of treatment and vocational support. IPS has shown effect on attaining and maintaining work for people with severe mental illness in a Scandinavian context (Bejerholm, Areberg, Hofgren, Sandlund, & Rinaldi, 2015; Kinoshita et al., 2013), but there is not yet solid evidence on how IPS can best be modified to suit a target group with common mental disorders. Recently a large Norwegian study tested integrated employment support designed with an emphasis on IPS principles and a work-directed therapy (At work and Coping, AWaC). The study showed promising results in terms of faster return to work for people with common mental disorders (Reme, Grasdal, Løvvik, Lie, & Øverland, 2015). Whereas IPS is normally provided within the health care system, services in the AWaC intervention is provided through the social security system. Intervention models that genuinely integrate services from the health care sectors and the employment sector in Scandinavia have not yet, to the author's knowledge, been tested on a target group with common mental disorders.

1.2 Current practices in Mental Health Care and vocational rehabilitation

The Danish mental health care system is mainly aimed at treating people with major psychiatric disorders. The primary care sector, where the majority of the target group is being treated, is not optimally organised and scaled with regard to treating people with common mental disorders (Danish Health and Medicines Authority, 2007a, 2007b; Dansk Psykiatrisk Selskab, 2001; Dansk Psykiatrisk Selskab & Dansk Selskab for Almen Medicin, 2004; Dansk Selskab for Almen Medicin, 2010a, 2010b). It has been recommended that people with common mental disorders are offered psychotherapy, and general practitioners (GP) can – if they wish and have the skills – offer this to all patients whom the GP consider eligible, or refer selected groups to a private practicing psychologist, where the patient is partly reimbursed. It is not likely, though, that everybody receives the right amount of psychotherapy and neither at the right time (KORA og IMPLEMENT, 2015).

The reasons for this might be that

1) GPs – who are responsible for the treatment of most of the relevant patients – are not obliged to conduct psychotherapy
2) Allegedly only half of GPs formally have the competency to conduct psychotherapy (Hauge-Helgestad, Schlepern Johansen, & Hansen, 2012)
3) GP reimbursement structure does not support clinical guidelines for psychotherapy in the sense that it does not imply any strong incentive (Hauge-Helgestad et al., 2012).
4) In case of stress conditions and for anxiety patients above 38 years of age, GPs cannot refer to partly reimbursed psychotherapy
5) Even when the patient can be partly reimbursed like aforementioned, the non reimbursed expense remaining keep some people from receiving treatment (KORA og IMPLEMENT, 2015)
6) By time of referral to private practicing psychologist a significant waiting time may occur, thus preventing a timely treatment (KORA og IMPLEMENT, 2015).

In a literature review concerning treatment of anxiety and depression in primary care, one Cochrane review was found. The reviews' conclusion was a recommendation to implement collaborative care between primary care and secondary care (mental health services), as a means of strengthening treatment (Archer et al., 2012). Hence, ressources have been allocated to a national collaborative care intervention under which the Collabri model is currently being implemented in the Capital Region of Denmark. However, the Collabri model turned out to be difficult to implement, since it requires an agreement between the GP union and the mental health services, regarding reimbursing the GPs' extra expenses. Furthermore, it requires that every GP will voluntarily conduct the treatment, and thus take part in the cooperation on the basis of such an agreement. Due to the experiences from the Collabri project, it seems necessary to test alternative strategies more likely to be implementable in Denmark. Experience like this has already been obtained in England, where psychotherapy has been made available to a substantially larger proportion of citizens through the project *Improving Access to Psychological Therapy* (IAPT) (Clark et al., 2009).

Furthermore, in the mental health service, responsibility for vocational rehabilitation has been taken only to a minor extent (OECD Publishing, 2012). Despite the fact that holding a job may in some cases pose a risk to the mental health of an individual, work is mostly considered to have a positive effect on mental health, since it generates income, structure and social interaction, which are also important aspects for people with common mental disorders (Bowling, 1995). The responsibility for vocational rehabilitation is mainly allocated to the municipalities' Jobcenter, where there has been an increasing focus on psychiatric disorders. There is, however, considerable uncertainty in the Jobcenters about how and how fast people can and should be suported in their vocational rehabilitation.

For people who have a reduced work function because of their disability, an optimization of the treatment is needed. The evidence for the effect of mental health care on occupational functioning is, however, inconsistent (Nieuwenhuijsen et al., 2014). Thus, there is a need to supplement the treatment with vocational rehabilitation, in order to support the patient's early, healthy and stable return to work and this should be conducted as an integrated intervention. Accordingly, the OECD recommends that mental health care in Denmark should focus on clinical symptoms together with occupational aspects, and that models for interventions where vocational rehabilitation and mental health care is integrated should be developed and tested (OECD Publishing, 2012). Furthermore, the OECD recommends that psychiatric issues among clients in the Danish job centres should be identified, and integrated interventions for this group of people implemented (OECD Publishing, 2012).

2 AIMS AND OBJECTIVES

In this chapter, an overview of the objectives of the six studies in IBBIS is presented.

2.1 OVERALL AIM OF THE IBBIS PROJECT

Sick leave due to common mental disorders is increasingly prevalent in Denmark and other high-income countries and accordingly represent high financial burden to society. Furthermore, prolonged duration of sick leave increases the risk of permanent exclusion from the labour market, which again is a risk factor for mental disorders. The process of returning to work after sick leave is complex, and several actors are important, but there appears to be a lack of coordination between relevant services. Therefore, new ways of organizing and coordinating relevant interventions is necessary and the IBBIS intervention is a newly developed intervention with the purpose to deliver integrated support to people on sick leave because of common mental disorders.

The IBBIS project will evaluate the integrated intervention and create valuable knowledge about the IBBIS population. The overall aim of the intervention is to enhance the process of returning to work after sick leave with common mental disorders. A minimum of six studies will describe the functioning, and effect of the sub-interventions and provide new knowledge about the trajectory, and predictors of the return to work process.

2.2 OBJECTIVES

Currently, the IBBIS project consists of six studies. The project contains a large amount of data, and it is likely that more studies will be designed. If so, the protocol will be updated accordingly. The objectives of the six studies are described below.

2.2.1 THE MENTAL HEALTH ASSESSMENT STUDY

The objective of this study is:

1. To examine the effect on vocational status following sick leave of:
    a. Standard GP assessment and standard vocational rehabilitation intervention
    b. IBBIS psychiatric assessment as a supplement to standard GP assessment and standard vocational rehabilitation intervention
2. To gain knowledge about the prevalence of psychiatric disease among people on sick leave.

2.2.2 RCT 1: ANXIETY AND DEPRESSION

The objective of RCT 1 is to evaluate the effect on return to work of the interventions targeting anxiety and depression: 1) standard vocational rehabilitation and standard mental health care compared with 2) IBBIS mental health care and standard vocational rehabilitation and 3) mental health care integrated with vocational rehabilitation.

2.2.3 RCT 2: STRESS-RELATED DISORDERS

The objective of RCT 2 is to evaluate the effect on return to work of the interventions targeting stress-related disorders like distress, adjustment disorder and exhaustion disorder: 1) standard vocational rehabilitation and standard mental health care compared with 2) IBBIS mental health care and standard vocational rehabilitation and 3) mental health care integrated with vocational rehabilitation.

2.2.4 Process evaluation study

The objective of this study is to evaluate the implementation of specific processes in the IBBIS interventions. It aims to provide knowledge about how and under which circumstances the integrated IBBIS intervention can be delivered as intended.

2.2.5 Cost-effectiveness study

The objective of this study is to provide an economic cost-effectiveness evaluation of the IBBIS intervention. This will enable governing agencies to decide more rationally as to whether IBBIS or IBBIS like interventions should be implemented.

2.2.6 Predictors for return to work study

The objective of this study is to examine which factors predict the duration of time to return to work. This will enable all relevant parties – clinicians, case workers and citizens – to tailor return to work-interventions more precisely.

3 INTERVENTIONS

In the following chapter, three overall themes are covered. First, IBBIS - relevant principles and research literature regarding mental health and vocational rehabilitation interventions is presented. Secondly, a description of the current practice of *standard* mental health and vocational rehabilitation interventions in Denmark are presented. Thirdly, the *specific* IBBIS mental health care and vocational rehabilitation interventions are presented.

3.1 BACKGROUND

The IBBIS interventions are based on a broad range of research and principles for mental health care and vocational rehabilitation.

The IBBIS mental health care builds on elements from the English *Improving Access to Psychological Therapy* (IAPT) (de Lusignan, Chan, Parry, Dent-Brown, & Kendrick, 2012) where talking therapy (mostly cognitive behavioural therapy) is provided to people with common mental disorders by IAPT therapists to improve equal access to therapy. IAPT is offered in England as part of the primary sector, but only to a small extent in cooperation with general practitioners.

The IBBIS mental health care draws on some principles from *collaborative care*. According to Gunn et al. collaborative care builds on the four principles: 1) A multi-professional approach to patient care (collaboration between GP and other health professionals), 2) A structured management plan, 3) Scheduled patient follow-ups, and 4) Enhanced inter-professional communication (Gunn, Diggens, Hegarty, & Blashki, 2006). A Cochrane review from 2012 concludes that collaborative care is more effective than usual care in reducing the burden of disease from anxiety and depression for people who are treated in primary care (Archer et al., 2012). A meta-analysis from 2014 has shown that psychotherapy is a crucial active component of collaborative care (Coventry et al., 2014).

A Cochrane review about return to work effects from interventions against depression from 2014 concluded that psychological treatment provided online or by telephone had a moderate effect on return to work, but quality improvements of primary care did not reduce return to work rates. Studies about treatment of depression often fail to evaluate the effects on work functioning, sick leave, and return to work (Nieuwenhuijsen et al., 2014). Enhanced treatment through collaborative care for people with depression has shown to improve functioning (Hudson, Bower, Archer, & Coventry, 2016) and the hypothesis in the IBBIS mental health care intervention is that the decrease in symptom severity will improve the return to work rate through enhanced functioning.

The literature regarding interventions to improve return to work for people with stress-related disorders is not yet conclusive and characterised by inconsistent terminology (van der Klink & van Dijk, 2003). Even though distress is, in practice acknowledged as a reason for sick leave from work, stress is not considered a diagnosis and only adjustment disorder is mentioned in the ICD-10 (World Health Organization, 1992).

In a Cochrane review from 2012, regarding interventions aiming at reducing the time to return to work in adults with adjustment disorder, Arends et al. found no pharmacological intervention beneficial. Neither cognitive behavioural therapy nor problem-solving therapy resulted in symptom reduction. However, problem solving therapy had better effects on return to part time work than standard treatment. By contrast, neither cognitive behavioural therapy nor problem solving therapy resulted in faster return to work full time (Arends et al., 2012). Problem solving therapy will be used in the IBBIS vocational rehabilitation intervention, which is described later. Stress disorders are often included in the term common mental disorders and interventions that target

the return to work process are often designed to aid people with one or more of the common mental disorders like depression, anxiety and distress. A meta-analysis has recently shown, that the heterogeneous interventions that have a primary or secondary aim to improve return to work has very limited effect (Nigatu et al., 2016).

The stress coaching, and additional mindfulness-based stress reduction (MBSR) which are the main elements in the IBBIS treatment for exhaustion disorder is inspired by a Danish stress management program, developed by Bo Netterstrøm and colleagues. The stress management interventions showed improved symptom reduction, and return to work rates for people with work-related stress (Netterstrøm, Friebel, & Ladegaard, 2012, 2013).

The IBBIS vocational rehabilitation draws on selected principles from the intervention Individual Placement and Support (IPS). IPS is an American intervention with a strong emphasis on integration of treatment and vocational support. IPS has shown superiority to standard care in attaining and maintaining work for people with severe mental illness internationally (Kinoshita et al., 2013) and in a Scandinavian context (Bejerholm et al., 2015), but there is not yet solid evidence on how IPS can best be modified to suit a target group with common mental disorders. Recently, a large Norwegian study tested integrated supported employment designed with an emphasis on IPS principles and a work-directed therapy (At work and Coping, AWaC). The study showed positive results regarding faster return to work for people with common mental disorders (Reme et al., 2015).

Activating problem solving therapy has been used as standard practice by occupational physicians in the Netherlands for more than 10 years (van der Klink & van Dijk, 2003). The IBBIS vocational rehabilitation has elements from the Dutch activation therapy as developed by Van der Klink and colleagues (van der Klink, J. J., Ausems, C. M. M., Beijderwellen, B. D., Blonk, R., Bruinvels, D. J., & Dogger, 2007). The participant is inclined to start working through graded activity, and the employment consultant monitors the individuals' progression to make sure stagnation does not occur with a clear aim to activate the participant as much as possible (van der Klink, J. J., Ausems, C. M. M., Beijderwellen, B. D., Blonk, R., Bruinvels, D. J., & Dogger, 2007).

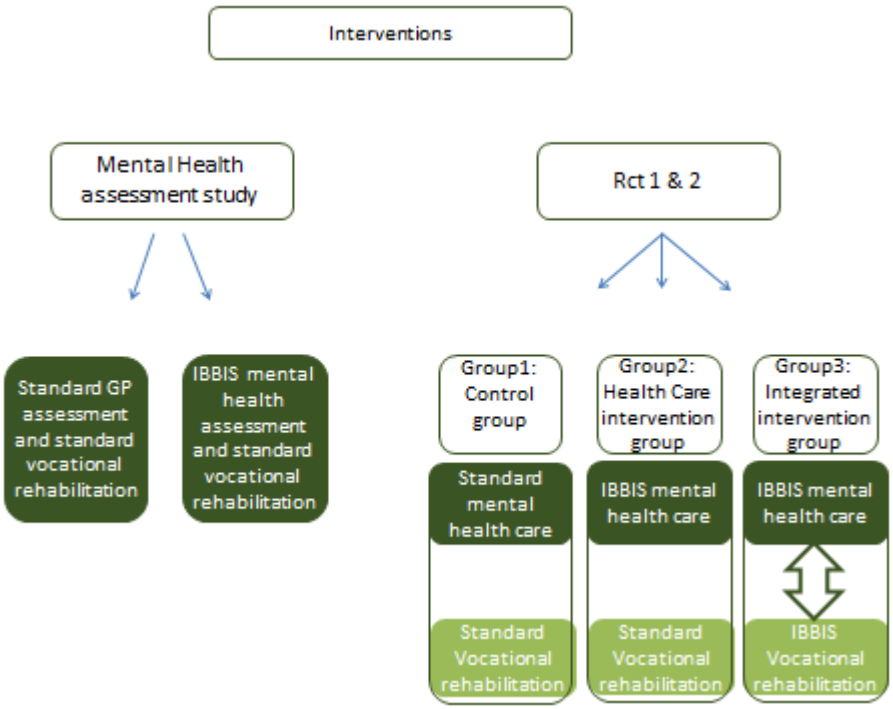
Recurring sick leave is an important risk in the process of returning rapidly to an existing job (Koopmans et al., 2011). Thus, a specific problem-solving method for preventing recurring sick leave is provided by the employment consultant. This is the manualized intervention *Healthy Participation and Relapse Prevention (SHARP) - at work* that is initiated by the employment consultant once the individual starts working. The problem solving intervention addresses concrete problems of return to work and guides the process of problem solving with relevant people like colleagues and employers (Arends, van der Klink, van Rhenen, de Boer, & Bültmann, 2014).

Consistency between goals and services in treatment and vocational rehabilitation is essential for the individual's vocational recovery (Andersen et al., 2012; Mikkelsgård et al., 2014). Based on the evidence from IPS and the positive effects from integrated interventions like *At work and coping* (Reme et al., 2015) the vocational rehabilitation intervention in IBBIS is integrated with mental health care delivery to ensure coherence.

3.1.1 Study Intervention

Three IBBIS interventions are tested in the IBBIS studies. In the two *RCT-studies* and in the *Mental Health assessment study*, IBBIS interventions are compared to standard interventions. In figure 3, an overview of the specific interventions linked to the relevant studies, is provided. For an in-depth presentation of the general study design, see chapter 4.

Figure 3: The interventions linked to the mental health assessment study and the RCT studies



3.2 STANDARD MENTAL HEALTH CARE AND VOCATIONAL REHABILITATION

Standard support for people on sick leave because of common mental disorders is very heterogenous in Denmark. There are many providers of public and private services in the health care sector, and in the jobcenters that differentiate between the 98 municipalities, and the five regions in Denmark.

Primary care is mainly provided by or through the GP, who is a gate keeper for services in the regional mental health services. Municipalities are, nonetheless also responsible for health promotion, prevention and some types of rehabilitation, which in some municipalities implies providing self-management courses for people with common mental disorders.

The vocational rehabilitation is to some degree standardised by legislation. Legislation has a major influence on local case management of the sickness benefit case. Legislation and economic reimbursement from the state to the job centres to some degree affects the services that are provided to support the citizens. Self-management courses are for instance mandatory for people on sick leave with common mental disorders and use of unpaid work training results in better reimbursement for some groups. The interpretation of legislation, and the time allocated to support people on sick leave is nonetheless very different from jobcenter to jobcenter.

The following description of services that are or should be provided to people on sick leave because of depression, anxiety and stress-related disorders is thus a very general description.

3.2.1 Standard Mental health care

The treatment of anxiety, depression, and stress mainly takes place in the primary sector and in the private sector. The GP plays an important role. The GP may initiate medical treatment and may choose to offer psychotherapy to the citizen. It is estimated that more than 80 % of Danish GPs offer supportive conversations. General practitioners are granted a specific charge (No 6101) for each supportive conversation session they conduct. The charge is equivalent to approximately three regular GP consultations, so the session usually lasts about 30 minutes. This service may be used only seven times each year. The practitioner does not receive payment to be supervised (Hauge-Helgestad et al., 2012). In 2011 275.013 psychotherapeutic session was provided to 127.101 patients by GPs (Regeringens Psykiatriudvalg, 2013).

The Danish Association of General Practitioners has published clinical guidelines for the treatment of depression and anxiety in general practice (Dansk Selskab for Almen Medicin, 2010a, 2010b). However, according to Hauge-Helgestad et al. the reimbursement system for GPs in the treatment of anxiety and depression does not support the use of guidelines, because less than 30 % of GPs offer cognitive behavioural therapy and seven sessions are now always sufficient (Hauge-Helgestad et al., 2012).

The GP can refer some groups of patients to a private practice psychologist, via a certain psychologist agreement, where approximately two thirds of the cost is reimbursed. Patients with depression (minimum 18 years) and patients with mild to moderate anxiety (between 18 and 38 years) may be referred through this scheme. Patients with psychological distress cannot be referred. There has been a marked increase in the use of this agreement; from 2004 to 2009 its use has more than doubled. In 2013, 854 psychologists were a part of the agreement and about 84,300 patients received a total of 479,100 psychologist sessions. Despite the high number of therapists there is on average between eight and ten weeks of waiting time for the start of therapy, and often people have to contact several psychologists to find one that takes in new patients. Analyses show that referrals via the psychologist agreement often comes from doctors who gives psychotherapy, suggesting that some practitioners are less likely to offer therapy, either themselves or referral to such (KORA og IMPLEMENT, 2015).

People have the option of paying for psychotherapy in private practice. Because of the high costs of psychological therapy in private practice, this is considered a major barrier for utilisation of therapy.

Furthermore, there are a number of free services from institutions and organizations that vary locally. For instance the Copenhagen Municipality offers mindfulness-based group treatment for psychological distress in the municipal prevention centre (Jensen et al., 2015). Some community health care centres also offer group-psychoeducation by educators with peer background (KORA og IMPLEMENT, 2015).

Additionally, the Mental Health Services of the Capital Region of Denmark offers standardized out-patient treatment programmes for people with severe anxiety disorder or depression who have not benefitted from treatment in primary care. The programmes are offered to people with generalized anxiety disorder, social anxiety disorder, single episode depression, recurrent depression and adjustment disorders (Danske Regioner, 2014). In 2011 approximately 4.700 adults were treated by the regional mental health services for anxiety disorders (Regeringens Psykiatriudvalg, 2013).

3.2.2 STANDARD VOCATIONAL REHABILITATION

The 98 jobcenters in Denmark are responsible for vocational rehabilitation and case management of the sickness benefit case for people who are on sick leave for minimum eight weeks. Case managers thus decide on which benefits the citizen is entitled to receive. Job centres are regulated by the Sickness Benefits Act, which has been reformed recently in July 2014 and January 2015 in order to shorten the time on sick leave and to improve support for the citizen on sick leave.

A typical course of sick leave is:

- The citizen reports in sick to their employer or the municipality job centre. The employer gets reimbursement from the job centre for part of the salary, if the citizen is employed. The sickness benefit is paid directly to the citizen if he or she is unemployed.
- If the employer estimates the sick leave to last more than eight weeks, the job centre must be informed. The employer must report this within five weeks after the first day of sick leave.
- The citizen is required to contact the GP for a specific medical note which describes the citizens' diagnosis (if any) and recommendations for health care.

Citizens on sick leave can be referred to the job centre within 30 days of sick leave using the so-called fast track programme, if the citizen or the employer anticipates that the sick leave will extend beyond 30 days.

The citizen is supported in returning to the current work place or to attain a new job by vocational rehabilitation services provided by the job centre. Support can be offered through group courses or individual support and is often outsourced to private companies who offer active employment support. Some municipalities also offer specialized programmes or services to other municipalities, and the role can also be handled by unemployment funds, educational institutions and unions (Bredgaard, Jørgensen, Kongshøj Madsen, & Rasmussen, 2011). Graded activity through part-time, unpaid or paid work is a standard method in the job centres.

There are over 20 major private companies that provide heterogeneous services for sickness benefit recipients. These organisations work locally and there is great variation in what is being offered in their various municipalities and among the various providers. It is very different how the interaction between the case manager and these companies is carried out, but written progression reports will often be a means of communication.

3.3 IBBIS INTERVENTIONS

The aim of the IBBIS interventions is to improve long-term sickness benefit recipients' process of returning to employment after sick leave with common mental disorders. To accommodate this complex process, IBBIS aims to improve the process in several domains: improving mental health of the individual, facilitating an early vocational rehabilitation process and follow up, and improving external factors like integration between different interventions towards the individual.

The IBBIS mental health care and vocational rehabilitation interventions are complex interventions (Craig et al., 2008), which are composed by a multiplicity of services, which will help the participants in IBBIS in different aspects, all together aiming to improve the process of returning to work and create a sustainable work situation for the individual.

The interventions are built on a bio-psycho-social framework (Álvarez, Pagani, & Meucci, 2012). The IBBIS interventions are structured to accommodate the assumption, that the struggles people experience when being on sick leave with mental problems is a product of biological, psychological

and social factors. The bio-psycho-social model implies that these factors, not only coexists but also have a great influence on each other. Thus, people need support targeted the psychological and biological aspects of the disorder as well as the social environment (including work environment) with an emphasis on how these factors interact. To create interventions that can combine these elements, the IBBIS interventions are provided by a multi-disciplinary team of professionals from the health care sector and the occupational sector.

All interventions are based on the four values:

- Individualized evidence-based practice
- Participant self-determination through knowledge
- Person-centered care
- Lowest effective care level

3.3.1 THE IBBIS TEAM

An IBBIS team consists of a number of core employees:

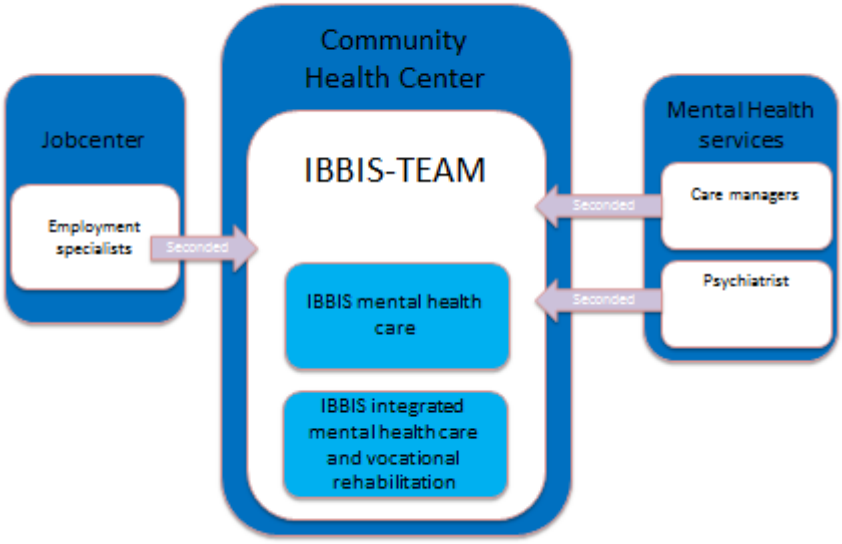
- Care managers (nurses, occupational therapists, physiotherapists, etc.) with experience from mental health care and minimum one-year training in cognitive behavioural therapy
- Employment consultants (case managers from the job centres)
- Team Leader (Can be a care manager or an employment consultant)
- Psychiatrist

In the IBBIS team, various other employees, like psychologists, psychologists with specialization in adult psychiatry[3] and junior doctors can do various tasks (e.g. clinical assessments or supervision) to ensure that the team is functioning well. In larger teams, it must be ensured that the team has the necessary administrative support so that the team leader has the necessary time to support the employee's competencies. The citizen's GP will be involved in cooperation with the team, if needed. In the sections below, the roles and tasks of the individual professionals and the cooperation with the GP are described.

The team will be working together to provide the integrated intervention while sharing location in the local community health centre or another location outside the job centre. This organization can is seen in figure 4.

[3] In Danish: ”Specialpsykolog”

Figure 4: The IBBIS-team organization



IBBIS participants will receive the mental health assessment before either the integrated IBBIS intervention or the IBBIS mental health care alone. The assessment intervention will thus be described firstly.

3.3.2 The Mental Health assessment

All citizens referred to mental health assessment in IBBIS, are either assessed by a care manager, a psychologist or a junior doctor. The psychiatrist is always responsible for the assessment results. The psychiatrist can delegate the task of conducting the mental health assessment but must always ensure that the individual care manager or psychologist has the necessary skills to conduct the assessments.

The assessment takes one to two hours and contains the following elements:

- Anamnesis
- Self-assessment through online questionnaire using the Four Dimentional Symptom Questionnaire (4DSQ) for depression, anxiety, stress and somatisation (Terluin et al., 2006b)
- Psychopathological structured assessment using Mini International Neuropsychiatric Interview (Sheehan et al., 1998) and the Criteria for Exhaustion Disorder according to the National Board of Health and Welfare in Sweden (Besèr et al., 2014)
- Screening for possible attention deficit disorders, personality disorders and dementia with the following screening instruments:
    - Standardised Assessment of Personality – Abbreviated Scale (SAPAS) (Moran et al., 2003)
    - ADHD-symptom checklist for adults (Adult Self Report Scale, ASRS v1.1) (Kessler et al., 2005)
    - Mini Mental State Examination (Cole et al., 2006)

If possible, a diagnosis will be established. Since organic causation must be ruled out for almost any psychiatric diagnoses, the citizens' GP's medical certificate for the sick leave case is utilized in diagnosing. If the medical certificate determines any psychiatric cause, it will be assumed that organic causes are ruled out.

The conclusion from the psychiatric assessment is explained to the citizen orally. Written conclusions with diagnoses (if applicable) and description of symptoms are forwarded to the citizens' GP and the job centre.

3.3.3 Mental Health Care Interventions

Whereas the mental health assessment is conducted similarly for all types of disorders, the mental health care is differentiated between the disorders depression, generalised anxiety disorder, social phobia, panic disorder, exhaustion disorder, adjustment disorder, and distress. Some features of the mental health care are nonetheless common for the seven types of disorders.

The following principles are common for all types of mental health care:

a) Mental health care is delivered by care managers, supervised by psychiatrists

Treatment in general is supervised by psychiatrists (with regards to monitoring, reassessment and adjustment of treatment plan). A medical doctor is always responsible for the mental health care. The psychotherapeutic interventions are, if possible, supervised by psychologists.

b) Treatment follows structured treatment guidelines

The multidisciplinary treatment follows Danish and English guidelines which describe the structure of the treatment (duration, frequency, content)(Danish Health and Medicines Authority, 2007a, 2007b, Dansk Selskab for Almen Medicin, 2010a, 2010b; NICE, 2009).

c) A stepped care principle

According to the stepped care principle, the severity of the disease determines treatment. A stepped care algorithm with 3-5 steps is described for each diagnosis (and combinations of diagnoses). The severity of the condition is reassessed monthly by the care manager in collaboration with a psychiatrist. If symptoms are not reduced as expected, the participant will be moved to a higher treatment step. The stepped care model is recommended for treatment of common mental disorders in both Danish and English guidelines (Dansk Selskab for Almen Medicin, 2010a, 2010b; NICE, 2009).

d) Collaboration with the GP

If a psychiatrist in IBBIS suggests that any alterations in the medication of a citizen should take place – whether it being initiation, cessation or dose alteration – the GP will be advised to do so, and the citizen is advised to contact the GP for help with this. The GP is responsible for conducting this treatment. Preferably the psychiatrist and the citizens have achieved agreement on what should happen.

A structured close collaboration between the public Mental Health Care Services and the individual's GPs has unfortunately proved to be very difficult in Denmark. The enhanced inter-professional communication between the IBBIS treatment team and the GP is thus limited to the most necessary communication during assessment and with regards to medical treatment in the IBBIS intervention.

3.3.3.1 IBBIS mental health care for depression and anxiety

The IBBIS mental health care intervention for people with depression and anxiety disorders consists of structured treatment guidelines for each of the disorders depression, generalized anxiety disorder, panic disorders, social phobia and the combinations of these disorders.

People who have a low level of disease severity are initially provided with psychoeducation. Psychoeducation in IBBIS mental health care is provided by a care manager. The individualised patient education in IBBIS is developed from the group-based self-management program *How to manage depression, anxiety, stress, and work*. The programme is originally developed by Stanford University, The Expert Patient Program Community Interest Company, the National Health Service (NHS), and the Danish Committee for Health Education and is a specialised version of The Chronic Disease Self-Management Program. The Danish group-based programme proved to be effective in reducing symptom level and increasing self-efficacy for people with depression and anxiety (S. Christensen & Mehlsen, 2016).

The algorithm for initial treatment of people with depression and anxiety disorders are displayed in *Table 1: Steps of depression treatment* and *Table 2: Steps of* anxiety *treatment*.

Table 1: Steps of depression treatment

Diagnosis and level	Initial treatment
Light depression	- Psychoeducation
Moderate depression	Either: - Cognitive behavioural therapy (CBT) or - Pharmacological treatment and psychoeducation
Severe depression	Both: - Cognitive behavioural therapy (CBT) and - Pharmacological treatment
Severe depression with complication	Referral to secondary sector

Table 2: Steps of anxiety treatment

Diagnosis and level	Initial treatment
Social phobia	CBT
Panic disorder	CBT
Generalized anxiety disorder - *without* clear impact on functioning	Psychoeducation
Generalized anxiety disorder - *with* clear impact on functioning	CBT

3.3.3.2 IBBIS mental health care for stress-related disorders

The IBBIS mental health care for people with exhaustion disorder, adjustment disorder and distress has three initial treatment steps. The treatment modalities are: bibliotherapy, psychoeducation, monitoring, stress coaching and MBSR. Steps are presented in *Table 3: Steps of treatment of stress-related disorders*.

The citizen's disorder and level of symptoms are determined during the initial mental health assessment.

Table 3: Steps of treatment of stress-related disorders

Disorder	Initial treatment
Light distress (4DSQ stress-scale 10-20) for < 2 months **or** **Moderate distress (4DSQ stress-scale > 20) for <1 month** **or** **Adjustment disorder < 2 months** **Moderate distress (4dsq >20) for > 1 month** **or** **Moderate distress (4DSQ stress-scale 10-20) for > 2 months** **or** **Adjustment disorder for >2 months and 4DSQ 10-20** **or** **Adjustment disorder for > 1 month and 4DSQ > 20**	Bibliotherapy Patient education programme Monitoring by care manager Stress coaching Bibliotherapy Patient education programme Monitoring by care manager
Exhaustion Disorder according to the National Board of Health and Welfare in Sweden	Mindfulness Based Stress Reduction (MBSR) Stress coaching Bibliotherapy Patient education programme Monitoring by care manager

Stress coaching in the IBBIS mental health care aims to provide stress reduction, create body awareness and awareness of stress patterns, and work with appropriate coping mechanisms. The stress coaching is conducted individually with the care manager over 7 sessions.

MBSR is a structured 8-week group-based programme, which has been tested in healthy as well as physically and mentally ill populations with the aim to reduce symptoms of depression, stress, anxiety, and pain, and increase mental health. The MBSR was developed by Jon Kabat-Zinn (Kabat-Zinn, 1999) and aims to cultivate mindfulness through formal practices and on integrating this capacity into everyday life as a coping resource. A descriptive review from 2011 concluded that MBSR is superior to waiting list in improving mental health in self-selected clinical and non-clinical populations (Fjorback, Arendt, Ornbøl, Fink, & Walach, 2011). The included studies were nonetheless of varying quality and the MBSR programme has to the authors knowledge been tested on stressed people on sick leave from work in a few studies. MBSR was, however, an active

component in the stress management program by Netterstrøm et al., that improved return to work compared to treatment as usual in Denmark (Netterstrøm et al., 2013).

The MBSR groups are facilitated by a certified MBSR teacher, and the care manager is not involved in the training. The group meets weekly and are prompted to do 45 minutes of homework (body scan, meditation, and yoga).

The patient education in IBBIS mental health care for people with distress, adjustment disorder and exhaustion disorder is similar to the patient education for people with depression and anxiety.

3.3.4 THE VOCATIONAL REHABILITATION INTERVENTION

The vocational rehabilitation intervention in IBBIS is based on the Danish sickness benefit reform from 2015[4], with emphasis on early intervention and follow-up of the citizens with all types of disorders. The intervention is embedded in regular job centre practice but with more emphasis on the specialized support provided by the employment consultant, who in standard services is strictly a case manager of the benefit case.

A structured literature review is conducted to assess the current evidence base for vocational rehabilitation interventions for people with common mental disorders. 39 studies were included in the review with 13 other reviews, 17 RCTs, four cluster-RCTs, and five controlled studies. The IBBIS intervention manual is designed with emphasis on problem-solving interventions and a combination of therapy and vocational rehabilitation.

IBBIS vocational rehabilitation services are manuallized, and delivered by employment consultants who are at the same time case managers for the participants' sickness benefit case.

The vocational rehabilitation in IBBIS is composed of the following elements, which are delivered to meet the participant's individual needs for vocational recovery:

- Vocational assessment of the participant's work capacity and barriers in relation to work with focus on readiness for return to work (Franche & Krause, 2005), work role functioning (Abma, Van Der Klink, & Bültmann, 2013) and return to work self-effficacy (Shaw, Reme, Linton, Huang, & Pransky, 2011)
- Process facilitation according to the activation model
- Vocational rehabilitation plan produced in collaboration with the participant and in compliance with the vocational rehabilitation manual
- Support in returning to a current workplace and preventing recurrent sick leave. The support is focused on rapid, stepwise return to work and is inspired by Dutch guidelines and the intervention *SHARP-at work* (Arends et al., 2014; van der Klink, J. J., Ausems, C. M. M., Beijderwellen, B. D., Blonk, R., Bruinvels, D. J., & Dogger, 2007)
- Support in job-search with a focus on the best possible job match inspired by Individual Placement and Support (IPS) (T. Burns et al., 2007)
- Case management according to Danish sickness benefit legislation
- Coordination, where relevant, with other public authorities who provide social services
- Involvement of relatives

The vocational rehabilitation intervention is designed specifically for the IBBIS intervention to accommodate participants who are on sick leave because of common mental disorders by drawing from the following evidence-based vocational interventions:

[4] Http://www.ft.dk/ripdf/samling/20131/lovforslag/l194/20131_l194_som_vedtaget.pdf

- Individual Placement and Support (IPS)
- Activating, problem solving therapy

Besides the principle regarding integration between treatment and vocational support, the key IPS principles (T. N. Christensen et al., 2015) featured in the IBBIS intervention are 1) competitive work is the goal, 2) attention to participant preferences, 3) rapid job search, 4) systematic job development and 5) time unlimited support. This implies that the employment consultants, who support individuals in attaining a new job, attempt to minimize the use of temporary, unpaid employment, respect participants' job preferences and support them in their way to achieve this type of work, start addressing job search quickly after enrolment in IBBIS, spend time to learn about the work conditions and employer needs through continuous communication with organizations and employers, and provide support after the individual starts working.

3.3.5 INTEGRATION OF IBBIS INTERVENTIONS

Consistency between goals in treatment and vocational rehabilitation is crucial [22, 30]. Several integrational elements ensure coherence in the participants' process of returning to work and recovering from mental health problems in the integrated IBBIS intervention:

- A minimum of one roundtable meeting with the participant, the Employment Consultant, and the Care Manager where a *common plan for return to employment* and the support from the IBBIS team is decided
- Co-location of all team members
- Multidisciplinary supervision of Care Managers and Employment Consultants together to enhance a continous focus on the shared goals of each participant

The integrated services are based on the theoretical framework relational coordination by Jody Gittel in which timely and problem-solving communication between different professionals is created by focusing on shared goals, shared knowledge and mutual respect (Gittell, 2006). The purpose of the *common plan for return to employment* is to create focus on the ultimate aim of the intervention: a good and fast return to work process. The roundtable meeting creates a forum for discussion of the plan and gives the professionals a possiblity to learn about the other professionals' skills and an understanding of the intermediate aims that the other professional set, in collaboration with the participant on sick leave.

3.4 FIDELITY AND QUALITY ASSESSMENT

Implementation and provision of the interventions will be monitored through fidelity reviews. These will be conducted on the basis of registrations by the IBBIS team members, observations and interviews with the professionals and participants, and case reviews. Registrations from IBBIS professionals include consultations and services, and participant-specific information like the progression of symptoms.
The fidelity reviews have the purpose of benchmarking specific aspects of implementation, e.g. adherence to a specific caseload for each professional, on a fidelity scale designed specifically for the IBBIS project. The fidelity review will also benchmark qualitative aspects of implementation like adherence to a specific process for conducting team meetings. Because of the standardized fidelity scale the quality of implementaion can be compared between teams and the progression in score can be monitored.

Furthermore, a process evaluation will evaluate the implementation of selected core elements of the interventions and provide in-depth knowledge about how the following complex elements of the interventions are implemented

- Collaboration with participants in compliance with the described value shared decision-making
- Integration of services through relational coordination between IBBIS team members

4 STUDY DESIGN

In the following chapter, the study design of the six studies in the IBBIS-project is presented. Several parts form the IBBIS project, and the design of each part of the project is described in this chapter. First, the study design of *the Mental Health Assessment study* is presented, followed by the two *RCT-studies*. Since citizens are screened for eligibility to the *RCT-studies* in the mental health assessment, these studies are linked.

The overall project flow is depicted in the section *Trial flow chart*. Citizens eligible for the mental health assessment study are referred and psychiatrically assessed as a part of this study, and they consent to referral and participation in the same procedure. By participating in the mental health assessment, subjects are assessed for eligibility for one of the two RCT studies as well. If eligible, subjects are prompted for consent to the relevant RCT as the last part of the assessment.

The other studies, *The Process evaluation study*, *The Cost-effectiveness study*, and the *Predictors for return to work study* are subsequently described in each chapter section.

4.1 THE MENTAL HEALTH ASSESSMENT STUDY

4.1.1 INTRODUCTION

4.1.1.1 Issues with diagnosing common mental disorders

According to ICD-10, there is “long-standing and notoriously difficult problems associated with the description and classification” of mood [affective] disorders (F30-F39). ICD-10, however, provides a detailed description and diagnostic guidelines, seeking to increase reliability across countries and clinical settings (World Health Organisation, 1993).

Still, ICD-10 describes the need for categories like various subdivisions of adjustment disorder (F43.2) with the purpose “to facilitate the description of disorders manifest by a mixture of symptoms for which a simpler and more traditional psychiatric label is not appropriate but which nevertheless represent significantly common, severe states of distress and interference with functioning”, like the disorders corresponding to inclusion criteria of IBBIS RCT2: distress, adjustment disorder and exhaustion disorder (World Health Organisation, 1993). ICD-10 notices also that “difficulties in using these categories reliably may be encountered, but it is important to test them and - if necessary - improve their definition”. Though written in 1993, there is, to the authors’ knowledge, not since developed any significant consensus on how to distinguish these disorders, due to lack of a widely accepted definition of distress (van der Klink & van Dijk, 2003).

4.1.1.2 Consequences of diagnoses

Uncomplicated and not severe mood and anxiety disorders are as most adjustment disorders considered common mental disorders, and they are differential diagnoses to each other. Although there are many common features among common mental disorders, there are different treatment recommendations, especially regarding treatments that have effect on RTW time. For adjustment disorder, problem solving therapy have shown moderate effect, whereas CBT did not (Arends et al., 2012). Hence, assessment before treatment is crucial. The purpose of the mental health assessment is thus both to provide correct treatment of a specific subcategory (e.g. social anxiety) of common mental disorders, but also to provide correct treatment for people, who suffers from other disorders (e.g. OCD or PTSD), that are not included in the RCT-studies.

4.1.2 AIMS AND OBJECTIVES

The objectives of this study are

1) to examine the effect on vocational status following sick leave after
    a. Standard GP assessment and standard vocational rehabilitation intervention
    b. IBBIS mental health assessment as a supplement to standard GP assessment and standard vocational rehabilitation intervention and
2) to gain knowledge about the prevalence of psychiatric disorders among people on sick leave.

4.1.3 PARTICIPANTS

4.1.3.1 Inclusion criteria

- Sickness benefit receipient on sick leave for no less than four weeks, and at sick leave at first follow-up appointment in municipal job centre.
- on sick leave from job or vacancy, due to a psychiatric disorder diagnosed by the GP, or suspected as reason for sick leave, by either the sick leave absentee, or the municipal case worker
- attached to a job centre in one of the following municipalities:
    - Copenhagen
    - Gladsaxe
    - Gentofte
    - Lyngby-Tårbæk
- aged 18 or more
- gives consent

4.1.3.2 Exclusion criteria

- Marked with a security note (SOS) in the jobcenter

4.1.4 ASSESSMENT PROCEDURE

4.1.4.1 Visitation

When citizens are referred to the IBBIS project from one of the four referring municipalities, all referrals are controlled by a psychiatrist, to see if inclusion criteria are met. This can be done by reviewing referral file material, or, if necessary, by a clarifying telephone interview with the citizen.

If the mental health assessment is relevant and the citizen decides to participate, the job centre case manager will collect written informed consent that the citizen understands the implications of

participating in the mental health assessment and forward information about the citizen to the IBBIS team. This first consent implicates that the IBBIS team can share data with:

- GP
- Job centre
- Research team

The citizen is informed that she or he can bring a relative to an additional information meeting, where an IBBIS team member will inform about the assessment and the implications for the citizen and that she or he has the opportunity for a 24-hour reflection period before the decision to participate has to be made. Furthermore, citizens are informed that the assessment requires completion of an online questionnaire (approximately 1 hour) and a face-to-face interview with a health care professional from the IBBIS team (approximately 2 hours).

4.1.4.2 The mental health assessment

When it is obvious, at reception of referral material that a psychiatric diagnosis is already well established, and that current treatment is sufficient (e.g. referral to hospital based mental health care is already planned), the citizen is referred back to the jobcentre with this assessment information.

If not, the standard procedure is as follows: The baseline interview and mental health assessment will take place (at the earliest 4 weeks after the first day of the sick leave). This interview is manualised and conducted as follows:

1. The psychiatrist allocates the citizen to an assessor, either a psychiatrist, a MD, a psychologist or a care manager trained in assessment.
2. An assessor assess the citizen through interview including the following elements:
    a. Anamnesis: Report about course of sick leave and symptoms
    b. Mini International Neuropsychiatric Interview (Sheehan et al., 1998), modified for IBBIS, and
    c. Standardised Assessment of Personality – Abbreviated Scale (Moran et al., 2003), and
    d. ADHD symptom checklist: Adult Self Report Scale, ASRS v1.1 (L. Adler, Kessler, & Spencer, 2003)
    e. If dementia is suspected: Mini Mental State Examination (A. Burns, Brayne, & Folstein, 1998)
3. The citizen completes Four-Dimensional Symptom Questionnaire (4DSQ)(Terluin et al., 2006b)
4. Organic causation is ruled out by the GP, when the GP in their medical note establishes a psychiatric cause of the symptoms

The main responsibility for the assessment lies with the psychiatrist. Assessment interview can be delegated to others, under supervision of a psychiatrist.

If it is assessed that the citizen has anxiety, depression or a stress-related disorder (F40-F41, F32-33, or F43 in ICD10), the citizens will be offered treatment in the IBBIS RCTs, if the citizen is otherwise eligible in all regards. If the citizen consents participate in an IBBIS RCT, the citizen is randomized.
If the citizen consents to an RCT, and is randomized to control group, or if the citizen does not consent, the job centre and the GP is informed hereabout, regarding the assessment result (diagnosis included, if applicable), and receives recommendation of treatment of the citizen.

If the citizen consents to an RCT and is randomized to one of the intervention groups in IBBIS (group 2 or 3), the job centre and GP is informed about this as well as about assessment result (diagnosis included). For an in-depth presentation of the RCT-groups/design see section 4.2

4.1.5 DATA ANALYSIS

4.1.5.1 Study groups

An intervention cohort will be formed: all citizens who are assessed in the IBBIS team but who does not receive IBBIS treatment, due to either being in the control group, or not giving consent to participate in an RCT. A control cohort will be formed, consisting of citizens *eligible for referral* to IBBIS assessment but who are not offered the assessment due to limitations in referral capacity. These groups will be coupled to an integrated database for labour market research[5], which contains data regarding demography (e.g., gender, age, marital status, address, place of birth and national citizenship), family information, income, work status and more.

4.1.6 OUTCOMES

Primary outcome in the IBBIS project lies in the RCT studies, see section 4.2. Hence, in the mental health assessment study, all outcomes are classified as *other* or *explorative*, as follows:

4.1.6.1 Other outcomes

1. Difference between cohorts will be calculated regarding time from baseline to partial return to work, part time RTW at 6, 12 and 24 months, calculated as a hazard ratio, using cox regression. Likewise, the difference between cohorts will be calculated regarding time from baseline to full RTW at 6, 12 and 24 months.
2. Which diagnoses describes the cohort? (ICD10 diagnoses)
3. Which sociodemographic factors describes the cohort? (age, gender, previous labour market attachment)

4.1.6.2 Exploratory outcomes

Furthermore, a descriptive analysis of the assessed citizens (the index cohort) will be performed, of the group who received the IBBIS assessment, regarding:

1. Which treatment has the cohort been offered previous to IBBIS assessment and which sociodemographic or personal factors predicts this? (T-test for difference in proportions, and RR ratios)
2. Does the assessor influence the choice of diagnoses? (T-test of assessor differences in proportions of inclusions into RCT1 vs. RCT2)

4.1.7 POWER CALCULATIONS

4.1.7.1 Sample size and cohort size number ratio

The size of the intervention cohort is determined by the needs of the RCTs, since referral to the assessment study will only persist as long as at least one RCT needs enrolment. We plan to include 400 participants from the RCT control groups and approximately 400 participants who receive assessment but who are not included in an RCT for any reason; and hence 800 subjects will be included in the assessment study intervention cohort.
The number of subjects in the control cohort will also be determined by limiting factors external to the project and is hence not controllable. Control cohort including rates is by the relevant collaborators esteemed to such that it is not unlikely that the number will reach a similar 800, and hence, the ratio between numbers in the two cohorts is 1:1.

[5] Da.: Integreret Database for Arbejdsmarkedsforskning (IDA)

4.1.7.2 Power calculation - Expected time to events

The time to the event *return to work* is in the RCT sample size calculations conservatively assumed to be 210 days, (see 4.2.6.1 Sample size calculation), and we want to be able to detect a difference in mean time to events of 14 days, which requires a sample size of 6199 subjects in each group. Time to partial return to work is easier to detect, since it – in its nature – occurs earlier, and is also an important event in the process of stable return to work. Expected duration of time to partial return to work, is set to 100 days in the control group, on the basis of results from a Cochrane review of RTW intervention in common mental disorders (Arends et al., 2012), and regarding this outcome we still seek to detect a difference of 14 days, and hence the time to event of the intervention group is set to 86 days.

4.1.7.3 Power calculations for the mental health assessment study

Table 4: Power calculations for the mental health assessment study

Outcome	**Power**	**Comments**
Time to partial RTW at 6, 12 and 24 months	6 months: 0,74 12 months: 0,83 24 months: 0,855	At 12 months: To reach a power of 0,9 we need 989 subjects in each group, which do not seem unlikely
Time from baseline to return to work (RTW) at 6, 12 and 24 months	6 months: 0,156 12 months: 0,214 24 months: 0,276	

4.1.8 Statistical Analyses

Controls will be matched individually with cases (the ones who receives IBBIS assessment), utilizing *propensity score matching*, which is a method useful to eliminate baseline differences between groups. Match variables are the following: gender, age, previous health care consumption, municipality, previous work status and social benefits. Analyses will be conducted using conditioned logistic regression and cox-regression.

4.2 Randomized controlled trials

The effect on return to work from 1) the integrated IBBIS mental health care and IBBIS vocational rehabilitation and 2) the IBBIS mental health care intervention alone will be investigated in two randomized controlled trials by comparison with standard mental health care and standard vocational rehabilitation. The RCT studies are designed as three-armed investigator-initiated multi-centre parallel superiority trials*:* RCT 1 for people with generalized anxiety disorder, panic disorder, social phobia or depression, and RCT 2 for people with stress-related disorders.

The design of the two randomised controlled studies are described in peer reviewed articles in 2017, see (Poulsen, Fisker, Hoff, Hjorthøj, & Eplov, 2017a, 2017c).

RCT 1: The objective of this study is to compare the effects of three different interventions on participants with anxiety and depression.

RCT 2: The objective of this study is to compare the effects of three different interventions on participants with stress disorders, specified as exhaustion disorder, adjustment disorder or distress.

In each RCT, each participant is randomized into one of these three groups (in the ratio 1:1:1):

- Group 1: Control group, treatment as usual (standard MHC and standard VR)
- Group 2: IBBIS mental health care (and standard VR)
- Group 3: Integrated IBBIS mental health care treatment and vocational rehabilitation

Figure 5: The three groups in RCT1 & RCT2

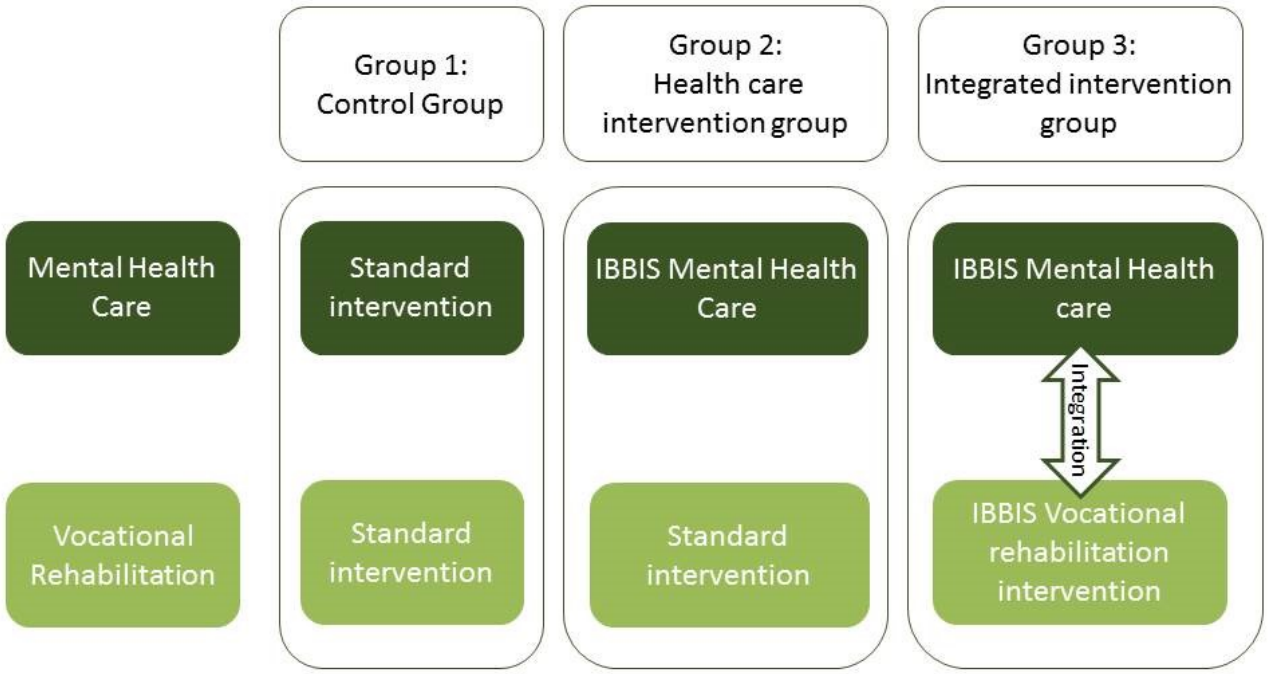


Figure 5 shows the three arms of each RCT study and the allocated interventions on two parameters: mental health care and VR. The trials are randomized and blinded multicentre studies.

The following hypotheses accounts for both RCT1 and RCT2:

A.

H_0: There is no significant difference in RTW-time at 12 months between participants in *group 3* and *group 2*.

H_1: There is significant difference in RTW-time at 12 months between participants in *group 3* and *group 2*.

B

H_0: There is no significant difference in RTW-time at 12 months between participants in *group 3* and *group 1*.

H_1: There is significant difference in RTW-time at 12 months between participants in *group 3* and *group 1*.

C

H_0: There is no significant difference in RTW-time at 12 months between participants in *group 2* and *group 1*.

H_1: There is significant difference in RTW-time at 12 months between participants in *group 2* and *group 1*.

4.2.1 PARTICIPANTS

Participants are referred to the IBBIS project from one of the four referring municipalities. Screening for eligibility for participating in the RCT-studies is performed during the mental health assessment.

4.2.1.1 Inclusion criteria

The following inclusion criteria apply to both RCT- studies:

- Receiver of sickness benefit for minimum four weeks at baseline: either on sick leave from work or unemployment at baseline
- Resident of one of following municipalities: Copenhagen City, Gladsaxe Municipality, Municipality of Lyngby-Taarbæk, or Gentofte Municipality
- Able to speak and understand Danish and capability of completing written and oral interviews without the use of an interpreter
- 18 years or older
- Have given written consent to participate

To be eligible for RCT 1 the participant has to meet the criteria for at least one of the following criteria:

- Generalized anxiety disorder (GAD, F41.1), social phobia (F40.1) or panic disorder (F41.0), according to ICD-10 evaluated through mental health assessment
- Depression (single episode or recurring unipolar) according to ICD-10 evaluated through mental health assessment (F32-F33)

To be eligible for RCT 2 the participant has to meet the criteria for at least one of the following criteria:

- Exhaustion disorder according to The Swedish National Board of Health and Welfare (NBHW) criteria for exhaustion disorder assessed through the mental health assessment (The Swedish National Board of Health and Welfare, 2003)
- Adjustment disorder according to ICD-10 (World Health Organization, 1992) evaluated through mental health assessment

- Distress according to 4DSQ (Terluin et al., 2006b) and evaluated through mental health assessment

4.2.1.2 Exclusion criteria

The citizen cannot participate in either intervention studies if he or she:

- Is pregnant
- Has a high degree of suicidal ideation evaluated through mental health assessment, aided by the MINI interview (Sheehan et al., 1998)
- Has dementia evaluated by the MMSE screening instrument (Cole et al., 2006)
- Abuse of alcohol or other drugs to the degree that the participant cannot profit from therapy (evaluated at the mental health assessment)
- Is judged to need psychiatric secondary sector care
- Unstable somatic condition that hinders participation in the project
- Participation in the research project Collabri
- Does not accept to abstain from taking part of any psychotherapy or psychotherapy-like treatment, outside the IBBIS project, during treatment in an IBBIS intervention group, if the participant is randomized to receive the intervention
- Marked with a security note (SOS) in the job centre

4.2.2 Outcomes and data collection

The effects of the interventions in the RCT-studies are measured on primary, secondary and exploratory outcomes. Measurements are done at baseline and after 6, 12 and 24 months. Baseline questionnaires are completed between the time of referral from job centre and baseline assessment interview. 6-, 12- and 24-month follow-up is a combination of self-rated questionnaires and register data. The project's primary outcome is based on register data, and there will not be obtained interviewer-based follow-up information. Secondary outcomes are measured by both register data and questionnaire data.

Data for the RCT studies is collected through four types of sources:

- Case report forms (CRF) from the mental health assessment
- Registration sheets completed by professionals
- Patient reported outcomes answered on-line
- Register data

An overview of how the different types of data collection takes place during the study can be seen in

Table 5: Power calculations for the mental health assessment study.

Table 5: Power calculations for the mental health assessment study

	Prior to baseline t_{-0}	**Baseline t_0**	**6 month-follow-up, t_1**	**12-month follow-up, t_2**	**24-month follow-up, t_3**
CRF from personal interview		X			
Registration sheets		X	Continuous registration		
Self-assessment data	X		X	X	X
Register data		X	X	X	X

4.2.2.1 Primary outcome

The primary outcome of the trial is the time from baseline until stable return to work. Baseline is defined as the day the participants are randomized. Stable return to work is defined as a coherent period of 4 weeks without receiving sickness benefits. This is similar to studies examining return to work after sick leave among people with common mental disorders (Bakker et al., 2007; Brouwers, Tiemens, Terluin, & Verhaak, 2006; Suzanne E. Lagerveld, Blonk, Brenninkmeijer, Wijngaards-de Meij, & Schaufeli, 2012; Noordik et al., 2013; Rebergen, Bruinvels, Bezemer, van der Beek, & van Mechelen, 2009).

It is tested, if participants, receiving a mental health care intervention (group 2), and participants receiving both an integrated health care treatment and vocational intervention (group 3) has a faster return to work than people receiving treatment as usual (group 1). This is determined at 12 months follow-up. This is shown in
Table 6: Primary outcome.

The primary outcome is based on data from the DREAM database. The DREAM database is a Danish longitudinal database based on data from the Ministry of Employment, the Ministry of Social Welfare and Education and the Ministry of Refugee, Immigration and Integration Affairs. In addition, it covers data from The Population Register (CPR) and SKAT (Danish Tax Agency). The register includes all persons who have received certain social benefits from mid-1991 onwards. DREAM covers approximately 5 million people.

All participants receive sickness benefits at baseline. Participants in the trial are citizens who, prior to receiving sickness benefits, have been:

1. Salaried employees
2. Self-employed
3. Receiving unemployment benefits
4. In flexible jobs (Da.: “flexjob”)

The criterion for ‘stable return to work’ differs between these groups. In group 1 and 2 "stable return to work" is defined as obtaining employment for minimum four weeks. This event is detected through DREAM data when no benefit code (Da. *“ydelseskode”*) is specified in the DREAM register, but an industry code (Da. *“branchekode”*) is set, indicating that the participant has paid labour.

Participants in group 3 with flexible jobs before sick leave are registered in the DREAM register with service code "774 = Flex job”, flexible job with sickness benefits. If this code is set at least one week before the transition to sickness benefits, "stable return to work" is defined as either 4 consecutive weeks with service code "771 = Flex job" or 4 weeks with an industry code as a proxy for income (ordinary work)

Table 6: Primary outcome

	Data source	Outcome	Baseline	6 months	12 months	24 months
Primary	DREAM database	Time from baseline to return to work (RTW)			X	

4.2.2.2 Secondary outcomes

There are seven secondary outcomes and data are collected through the DREAM database and self-rated questionnaires. The secondary outcomes are shown in Secondary outcomes.

Table 7: Secondary outcomes

Data source	Outcome	Baseline	6 months	12 months	24 months
DREAM data	Amount in ordinary work			X	
DREAM data	Time from baseline to return to work (RTW)		X		X
DREAM data	Time from first day of RTW until possible recurrent sick leave				X
Questionnaire	Depressive symptoms measured by Beck Depression Inventory	X	X		

	(BDI) (Aaron T Beck, Brown, Epstein, & Steer, 1988)				
	Anxiety symptoms measured by Beck Anxiety Inventory (BAI) (Aaron T. Beck, Steer, & Carbin, 1988)	X	X		
	Stress-symptoms measured by Cohen perceived stress scale (PSS) (Cohen, Kamarck, & Mermelstein, 1983)	X	X		
	Social and work related function measured by WSAS (Mundt, Marks, Shear, & Greist, 2002)	X	X		

4.2.2.3 Exploratory outcomes

Exploratory outcomes are described in Table 8: Exploratory outcomes and follow-up time:

Table 8: Exploratory outcomes and follow-up time

Data source		Outcome	Baseline	Follow-up 6-month	Follow-up 12-month	Follow-up 24-month
DREAM data		Weeks of work from baseline to current follow up			X	X
	Questionnaires	Symptoms of Distress, anxiety, depression and somatization by Four-Dimensional Symptom Questionnaire (4DSQ) (Terluin et al., 2006a)	X	X	X	X
		Depressive symptoms measured by Beck Depression Inventory (BDI)(Aaron T. Beck et al., 1988)	X		X	X
		Anxiety symptoms measured by Beck Anxiety Inventory (BAI) (Aaron T. Beck et al., 1988)	X		X	X
		Stress-symptoms measured by Cohen perceived stress scale (PSS) (Cohen et al., 1983)	X		X	X
		Social and work related function measured by WSAS (Mundt et al., 2002)	X		X	X
		Burn-out symptoms by Karolinska Exhaustion Scale (KES) (Saboonchi, Perski, & Grossi, 2013)	X	X	X	X
		Health-related quality of life by EQ-5D-5L (Brazier, Roberts, Tsuchiya, & Busschbach, 2004)	X	X	X	X
		General Quality of life scale ved Flanagans QOLS (Burckhardt & Anderson, 2003)	X	X	X	X
		Self-efficacy concerning symptoms - IPQ subscale on personal control (Moss-Morris et al., 2002)	X	X	X	X
		Return to work self-efficacy by RTW-SE (Suzanne E. Lagerveld, Blonk, Brenninkmeijer, & Schaufeli, 2010)	X	X	X	X
		General self-efficacy by General Self-efficacy scale (GSS (Schwarzer & Jerusalem, 1995)	X	X	X	X
Interview		ICD 10 diagnosis, guided by Mini International Neuropsychiatric Interview (MINI) (1998)	X			

4.2.2.4 Other outcomes

Other outcomes are shown inTable 9: Other outcomes.

Table 9: Other outcomes

		Baseline	Follow-up		
Data source	**Outcome**		**6-month**	**12-month**	**24-month**
Interview	Screening for personality disorder by SAPAS (Moran et al., 2003)	X			
Questionnaire	Client satisfaction with treatment measure: CSQ-8 (Attkisson & Zwick, 1982)		X		
Questionnaire	Presenteeism by Stanford Presenteeism Scale (SPS) (Koopman et al., 2002)			X	X
Interview	Screening of ADHD symptoms by ASRS	X			

4.2.2.5 The questionnaires

A short description of the questionnaires used for all outcomes are presented below.

The Beck Depression Inventory (BDI–II) consists of 21 items to assess the intensity of depression in clinical and normal patients. Each item is a list of four statements (0 to 3) arranged in increasing severity about a particular symptom of depression (A.T. Beck, Steer, & Brown, 1996). The Beck Anxiety Inventory (BAI) is a 21-item general questionnaire for anxiety, measuring symptoms during the last week rated on a four-point Likert-scale from 0 to 3 (Osman et al., 2002). The BDI and BAI has shown excellent psychometric properties, with internal consistency: $\alpha = 0.92$ and $\alpha = 0.93$ respectively (Osman et al., 2002; Osman, Kopper, Barrios, Gutierrez, & Bagge, 2004). Cohens Perceived Stress Scale (PSS) is a global measure of perceived stress. The scale was originally a 14 item questionnaire, and it has later been moderated to a 10-item questionnaire which shows improved and satisfactory psychometric properties (Lee, 2012). The Work and Social Adjustment Scale (WSAS) is a simple, reliable, five-item scale which measures functional impairment related to an identified problem (Mundt et al., 2002), which is defined in this trial as 'psychological symptoms'.

The Four-Dimensional Symptom Questionnaire (4DSQ) is a 50-item questionnaire designed to assess common psychological symptoms in the last week and has a special focus on distinguishing

general distress from depression, anxiety, and somatization (Terluin et al., 2006a). The Karolinska Exhaustion Scale (KES) 26-item version measures the degree of exhaustion disorder and the four inter-related dimensions of exhaustion disorder according to the Swedish National Board of Health and Welfare: lack of recovery, cognitive exhaustion, somatic symptoms, and emotional distress (Saboonchi et al., 2013; The Swedish National Board of Health and Welfare, 2003). The EQ-5D-5L is a measure of health status in five domains: mobility, self-care, usual activities, pain/discomfort and anxiety/depression and also includes a Visual Analogue Scale from 0 (worst imaginable health status) to 100 (best imaginable health status) (Turner, Campbell, Peters, Wiles, & Hollinghurst, 2013). Flanagan's QOLS is a 16-item instrument that measures five conceptual domains of quality of life: material and physical well-being, relationships with other people, social, community and civic activities, personal development and fulfilment, recreation, and independence (Burckhardt & Anderson, 2003). The six-item Personal Control subscale from the revised version of the Illness Perception Questionnaire (IPQ-R) is used to evaluate the participant's self-efficacy regarding symptom management (Moss-Morris et al., 2002). Return to work self-efficacy (RTW-SE) is an 11-item measure for self-efficacy believes regarding return to work where respondents are asked to respond to statements about their jobs, imagining that they would start working tomorrow in their present emotional state (Suzanne E. Lagerveld et al., 2010) . The General Self-Efficacy Scale is a 10-item psychometric scale that is designed to assess optimistic self-beliefs to cope with a variety of difficult demands in life (Schwarzer & Jerusalem, 1995). Client Satisfaction Questionnaire (CSQ-8) is an eight-item questionnaire which is used to measure the participants' satisfaction with mental health care services and vocational rehabilitation (Attkisson & Zwick, 1982). Presenteeism refers to the state where a person attends work while being sick (Johns, 2010) and is used as a proxy measure for returning to work while having reduced workability.

A high response rate for the questionnaire data is secured by assertive prompting of the participant. Each participant will receive up to six personal contacts through telephone, text, formalized e-mail (e-boks meddelelse in Danish) if this is necessary to secure timely answers and if it is approved by the participant through written consent.

4.2.3 RANDOMIZATION

Centralized randomization will take place according to a web-based, computer-generated allocation sequence with varying block sizes kept unknown to the assessors. Randomization takes place in a ratio of 1:1:1. The Odense Patient Data Explorative Network (OPEN)[6] is responsible for the randomization; administrative personnel in the IBBIS team perform the online randomization; and the IBBIS team leader will assign the participant to interventions and professionals.

We expect that service delivery can vary from municipality to municipality and that the process of gaining a new job from unemployment will take a longer time than returning to an existing job. Previous research has shown that diagnosis is a possible predictor of return to work (Nielsen et al., 2011) . Thus, the randomization is stratified according to

i. Labor Market status (vacant vs. in job)
ii. Municipality affiliation
iii. Diagnosis:
    - in RCT 1: Anxiety respectively depression

[6] http://www.sdu.dk/en/om_sdu/institutter_centre/klinisk_institut/forskning/forskningsenheder/open/opens_faciliteter/randomize

- in RCT 2: Stress –related disorders, respectively exhaustion disorder, adjustment disorder and distress

4.2.4 BLINDING

Participants in the trial cannot be blinded to the group allocation. The IBBIS team Care Managers and Employment Consultants are also not blinded to the interventions received by the participants. Referrers and researchers will be blinded to the allocation sequence and block size. The researchers will be blinded to intervention group allocation during data analyses of the primary outcome, as well as secondary, and exploratory outcomes at 6 and 12 months. Blinding will be sustained during the analysis phase and while drawing the conclusion.

Since results of 6- and 12-month follow-up will be presented before analysis of data from 24 months follow-up, it is not possible to maintain blinding of researchers during the analyses of data from 24 month follow-up. This is certainly a risk of bias, but since the primary outcome at 24 months are based on register data and self-assessment, results are not likely to be affected.

4.2.5 DATA MANAGEMENT

All data management in IBBIS is carefully described in an application approved by the Danish Data Protection Agency in 2016. This application describes in detail where and how the data are managed, stored and secured. Furthermore, it lists all staff members dealing with data, and where and how these staff members are affiliated, respectively. The application is structured and honours a detailed and comprehensive list of demands, ensuring compliance with all relevant data management legislation.

In general, all data management in the IBBIS project complies with the principles that
1) All electronic data are stored at secured servers at closed networks,
2) All data transfer between staff members and other approved data managers or managing institutions, are carried out using only tunnel encrypted e-mailing and
3) All physical data material is stored in locked spaces, in locked facilities.

4.2.5.1 Data quality

Assessors have all received proper training in the included instruments/scales. The psychiatrist will observe the case managers' assessments regularly in order to secure the quality of the assessments. All assessment and baseline diagnoses at t_0 will be approved by an experienced psychiatrist.

There will be continuous quality assurance of the professionals' registration sheets by the secretariat to ensure that all consultation details with care managers and employment consultants (adherence to services), change in treatment steps, initial diagnoses, and reasons for withdrawal are registered. All errors regarding randomization, registration or assessment will be recorded in a logbook.

No formal audit has been planned.

4.2.5.2 Data monitoring committee and interim analysis

Since the IBBIS trial is not assumed to be associated with any risk of harm, according to investigations of similar interventions, a data monitoring committee will not be appointed, nor will any interim analysis be performed.

4.2.6 STATISTICAL METHODS

4.2.6.1 Sample size calculation

The sample size is based on a sample size calculation, using the 'Power and Sample Size' calculation programme[7].

Type I error (α) risk
In each of the two RCTs we wish to conduct multiple comparisons (between 3 groups), and hence significance level must be as follows, due to Bonferroni correction:

$$\alpha = \frac{0{,}05}{3} = \frac{1}{60} = 0{,}0167$$

Type II error (β) risk
The organizational constellation of the interventions has not yet been trialled, and thus the desired power shall be set to: $\beta = 0{,}9$

If it turns out that we cannot include enough participants, the power could be set to:$\beta = 0{,}8$

Hazard ratio (R)
The mean difference in time for return to work will be calculated as a hazard ratio. We estimate that as sufficient HR is $R = 1{,}5$
since just 50 % faster return to work time in the intervention groups will convey a relevant economic benefit, due to the hence smaller loss of productivity.

Mean time to return to work (M_1)
Number of days from baseline to return to work is conservatively estimated to be 210 days, after an observed range from 104 to 210 days, in the control groups in three Dutch RCTs (Suzanne E. Lagerveld et al., 2012; Oostrom et al., 2010; Vlasveld et al., 2013), which were comparable to the control groups in the IBBIS RCTs. Hence, $M_1 = 210$

Inclusion time period (A)
We will include participants through 24 months,$A = 730[days]$
Ratio between groups (m)

- Ratio is 1:1:1, and hence m = 1

Follow-up time (F)
We will follow participants up for 365 days, in which they will contribute with risk time in the survival analysis, hence F = 365
Result
In each group, due to the above-mentioned variables, we need

198 participants per group, and with two RCTs both including three groups that yields a need for, with power = 0.9

$$N = 198\ \frac{\text{participants}}{\text{groups}} \times 3\ \frac{\text{groups}}{\text{trial}} \times 2\ \text{trials} = 1188\ \text{participants}$$

If, in case of insufficient inclusion possibilities, power could be lowered to 0,8. In such case we would need the following number:

[7] http://ps-power-and-sample-size-calculation.software.informer.com

$$N = 153 \frac{\text{participants}}{\text{groups}} \times 3 \frac{\text{groups}}{\text{trial}} \times 2 \text{ trials} = 918 \text{ participants}$$

4.2.6.2 Power estimations, secondary outcomes

Table 9: Power estimations for secondary outcomes

Binary secondary outcomes	Expected proportion in control group	Expected proportion in intervention group	α-signi-ficance level	Power	Test	References
Proportion achieving more than four weeks of ordinary job	0,65	0,80	0,0167	0,838	χ^2-test	(Suzanne E. Lagerveld et al., 2012; Oostrom et al., 2010; Søgaard & Bech, 2009; Vlasveld et al., 2013)
Proportion of >4 weeks sick absentees among participants who returned to work, after 24 months	0,19	0,09	0,0167	0,692	χ^2-test	(Koopmans et al., 2011)

Table 10: Power estimates for secondary continuous outcomes

Outcome	δ clinically relevant difference in mean	σ expected standard deviation	α	Power	Test	Reference
Difference in depressive symptoms measured by Beck Depression Inventory (BDI)	4	11	0.0167	0.893	t-test	(Buszewicz, Griffin, McMahon, Beecham, & King, 2010; König et al., 2009; Mann et al., 1998; Muntingh et al., 2009; J Proudfoot et al., 2003; Judith Proudfoot et al., 2004)
Difference in anxiety symptoms measured by Beck Anxiety Inventory (BAI)	4	12	0.0167	0.826	t-test	
Difference in stress symptoms measured by Cohen perceived stress scale (PSS)	5	8	0.0167	1.000	t-test	(Ejeby et al., 2014; Lengacher et al., 2009;

						Willert, Thulstrup, & Bonde, 2011)
Social and work related function measured by WSAS	4	10	0.0167	0.946	t-test	(Phillips et al., 2014)

In accordance with the CONSORT guidelines, the analysis for all outcomes is analysed according to the intention-to-treat principle.

4.2.6.3 Statistical analysis of primary outcome

The primary outcome is the time from baseline to return to work, as measured after 12 months from baseline, data is obtained from the DREAM register and is therefore expected to be complete. The effect of the specific trial interventions, mental health care, and integrated mental health care and vocational rehabilitation respectively, will be analysed by cumulated incidence analysis (also known as survival analyses, often depicted as Kaplan-Meier curves). Cox regression-analyses will be utilized to compare the three groups, and relevant factors will be involved as co-variates.

4.2.6.4 Statistical analysis of secondary outcomes

The RCT- studies' secondary outcome, time from return to work date to subsequent sick leave, will be analysed for the group who has returned to work after one year. This will be analysed similarly to the primary outcome, through cumulated incidence analysis.

Five of the secondary outcomes are continuous: it is the four instruments BDI, BAI, PSS and WSAS and the outcome number of weeks in work. These will be analysed with *repeated measurement model in mixed model analyses with unstructured variance*. The prerequisite for using this analysis and the use of multiple imputations is that the data is *missing at random* or *missing completely at random* unlike *non-ignorable non-response*. This distinction is important since repeated measurement and *multiple imputations* are both models based on a statistical estimation of non-existing answers, and the premises for these estimations must be present for the analysis to be valid.

The dichotomous secondary outcome *proportion at work* will be analysed with logistic regression. Here too, multiple *multivariate imputations* will be used and all co-variate with presumed prognostic significance will be used to impute a distribution of missing data.

We will analyse whether the conditions for the use of repeated measurement and multiple imputation is present by conducting a drop-out analysis. Significant prognostic characteristics of patients that cannot be followed up will be compared with those patients who exhibit adherence to the study. Variables showing a difference between participants and non-participants will be included as co-variates in the analyses. Data analysis will be based on the intention-to-treat principle. Data from all patients will be included corresponding to the group to which they have been randomly allocated.

4.3 COST-EFFECTIVENESS STUDY

The aim of this study is to calculate the cost-effectiveness of the IBBIS interventions in the two RCT-studies. The cost-effectiveness study is sent in tender and will be carried out by researchers with expertise in this field. The cost effectiveness study will focus on two outcome measures: quality adjusted life years (QALY) and return to work (RTW).

QALY's are a measure used in health economic evaluations across countries and diseases. QALY's are calculated by multiplying the survival time with a health-related target. RTW in economic evaluations is typically measured in two ways: Number of days for return to work, or number of days in work over a 12-month period or longer. In this study, it is most appropriate to use the latter goal, as too fast return to work implies a risk of rapid sick leave. Two analyses are performed per intervention-arm (in both RCT-studies). The analysis of the QALY corresponds to the timeline of the RCT study, but for the return to work-analysis, a decision on a specific follow-up period will be made.

All costs are measured on an individual level and include costs both from the health and labour market. Costs are divided into intervention costs, which are costs from the intervention itself (e.g. time used for therapy); derived costs, which are costs from hospitalization, medication etc.; lost productivity, measured as labour market affiliation and lastly derived municipal costs.

A comparison is based on the incremental cost-effectiveness ratio, ICER, which is a measure of how much it costs to obtain an additional QALY.

4.4 PROCESS EVALUATION STUDY

4.4.1 INTRODUCTION

The IBBIS interventions are highly complex as they involve a high number of groups and organizations, a high number of new skills and behaviours are required by the professionals delivering the intervention, a high number of intermediate outcomes (addressing both work status, health status, quality of life and functioning), and a high degree of flexibility and tailoring of the intervention (Hansen & Tjørnhøj-Thomsen, 2015; G. Moore et al., 2015).
The aim of the RCTs is to examine whether or not the compounded complex interventions have an effect on return to work. The RCTs will provide little knowledge about why the interventions did or did not improve return to work compared to standard interventions. Process evaluations are highly relevant in order to understand the implementation and functioning of complex interventions (Linnan & Steckler, 2004; G. F. Moore et al., 2015a), which has been relevant on similar complex *return to work*-interventions internationally (Arends et al., 2014) and Danish municipalities (Aust et al., 2015; Martin, Nielsen, Petersen, Jakobsen, & Rugulies, 2012). Theoretically, implementation of interventions can be considered "a social process that is intertwined with the context in which it takes place" (Hansen & Tjørnhøj-Thomsen, 2015). Because implementation of an intervention differs in different contexts it is valuable to conduct a process evaluation which can qualify the generalizability (external validity) of the results from the effect evaluation, by describing the conditions under which the intervention worked or did not work (Hansen & Tjørnhøj-Thomsen, 2015). Thus, the process evaluation can provide important knowledge for a possible implementation of the IBBIS interventions in other Danish municipalities.

Whereas the fidelity reviews will give a cursory description of a broad range of elements in the IBBIS intervention, the process evaluation will provide in-depth knowledge about two selected core elements of the intervention:

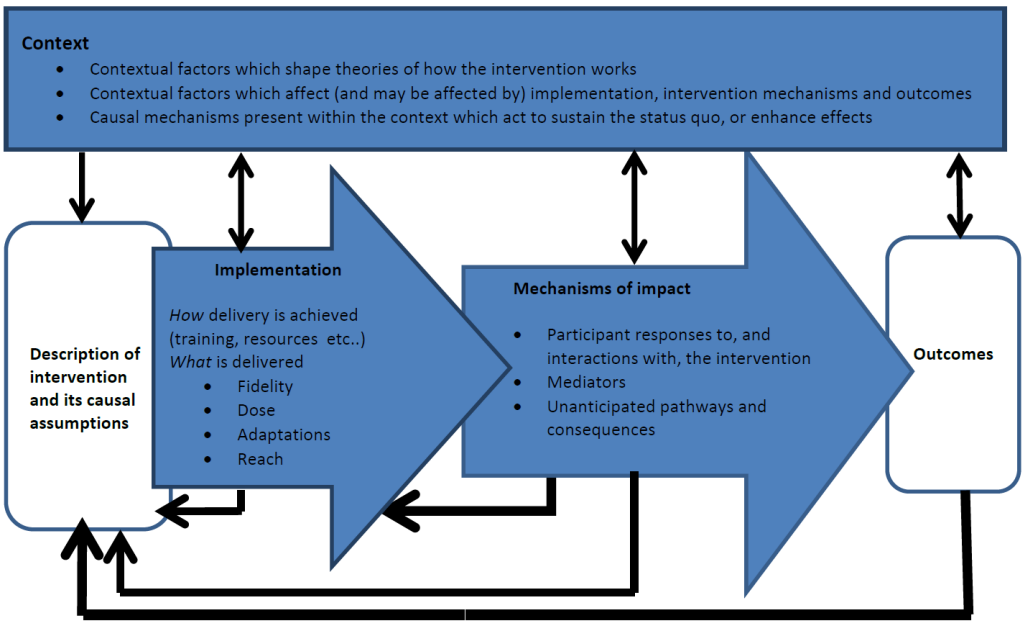
1) *Relational coordination* between professionals in the cross-disciplinary teams to create coherent mental health care and vocational rehabilitation courses for the participant
2) Person-centred interventions through shared decision making (SDM) between the citizen, employment consultant, and the care manager

4.4.2 Method

The process evaluation is designed to accommodate the guidelines of the British Medical Research Council for evaluation of complex interventions (G. F. Moore et al., 2015b) and takes a *realist evaluation* perspective on the integration of knowledge from the RCTs and the process evaluation (Bonell, Fletcher, Morton, Lorenc, & Moore, 2012).

Moore and Colleagues suggest that process evaluations are designed to describe the implementation of the intervention, the mechanisms by which these interventions are expected to produce change for the target group and the contextual factors which influence the implementation and mechanisms as just described (G. Moore et al., 2015). These core elements of a process evaluation are described in Figure 6.

Figure 6: Core elements in process evaluations according to Moore et al.



The evaluation process was initiated with the production of a logic model for the three IBBIS interventions after examination of the IBBIS intervention in three steps:

- Reading intervention material; 72 manuals, appendix' and worksheets
- Producing basic logic models about IBBIS interventions and implementation activities
- Consensus on logic models and key uncertainties through workshops with interventions designers(G. Moore et al., 2015)

Only the integrated mental health care and vocational rehabilitation intervention was selected for process evaluation and the three above mentioned themes was chosen from this intervention. Specific middle range theories where designed for the three core elements of the IBBIS intervention. The process evaluation will be performed as three separate studies each with the use of multiple *research styles* (Hansen & Tjørnhøj-Thomsen, 2015).

The roundtable meeting is of central interest as it is the empirical outset for our empirical material. The meeting is described in the IBBIS intervention as a starting point for the collaboration between professionals and the participant. All three parties are present during the meeting where the joint goals regarding treatment and vocational rehabilitation are decided and turned into a joint plan for the participants' return to work process.

From this empirical starting point, the roundtable meeting, the studies investigate the perspectives, efforts and context of the sick leave beneficiaries receiving the IBBIS service and the multidisciplinary team providing the service, respectively. The latter has a particular focus on the care managers (CM) and the employment consultants (EC), who are the primary service providers. In the following section, the methods applied in the two studies are described more specifically and related to the three components of the process evaluation – implementation, mechanism of impact and context.

We will use 1) observations of roundtable meetings 2) individual interviews with participants, care managers, and employments consultants, and 3) focus group discussions (FGD) with care managers and employments consultants, and 4) quantitative data from registration sheets regarding provision of roundtable meetings for these studies.

Our research questions are divided into sub-questions which are described under each study and implementation, mechanisms of impact and contextual factors respectively.

Sub-studies	**1) Implementation**	**2) Mechanism of impact**	**3) Contextual factors**
1) Shared decision making between the interdisciplinary teams and the citizens Observations (n=24) Telephone interview (n=12) Follow-up interview (n=8) FGD (n = 8 CM) (n = 8 BK)	How is SDM practiced in the roundtable meeting? **Observations** Are principles of SDM practiced according to OPTION scale? **Telephone interview (C)** How have citizens experienced their partaking in decisions in the roundtable meeting? **FGD (CM/ES)** How do team members experience the possibilities of practicing SDM?	How does the process of SDM and the agreed decisions made (the common plan) impact on citizens' return to work? **Follow-up interviews (c)** How have citizens managed to put the common plan into practice in their everyday lives? -challenges -success -modifications	How do contextual factors influence the common plan and how has the common plan influenced the context? **Follow-up interviews (c)** How have the citizens' life conditions, workplace etc. influenced the execution of the common plan? How has the common plan influenced life conditions, relations, and workplace? **FGD (CM/EC)** How has contextual factors (legal, organising, design) influenced the possibilities of SDM/ making common plans?

			(How has working with SDM/common plans influenced organisational, professional context?)
2) Relational coordination between professionals in interdisciplinary teams through roundtables Observations of roundtables with CM, EC, and the participant (n=12) Personal interviews with CM (n=12) Personal interviews with EC (n=12)	How, when, and how often are the roundtables conducted to create shared goals? **Registration sheets** How many participants have a roundtable? When are the roundtables conducted? How long are the meetings? How many roundtables are conducted for each participant? **Observations** Are the roundtables conducted with fidelity to the manual and the work sheet? How are the roundtable used to produce shared goals? How is shared knowledge produced or used at the roundtable? How does the CM and EC present respect for each or other? **Interviews with CM and EC** How do the professionals experience the production of shared goals with the participants? How do the professionals experience their collaboration with the other professional at the roundtable?	How do the roundtables enhance the integration of services? **Observations** What is coordinated? What happens if there are discrepancies between the professionals and/or the participants' wishes and recommendations? How does alignment take place? **Interviews with CM and EC** How do the CM and EC experience the coordination of services at the meeting?	How do the organizational context of CMs and ECs influence the collaboration (and if possible the integration of services) ? **Observations** How is the structure of the meeting and the decisions negotiated at the roundtables? Which positions do the CM and EC take? How is the job center and legislation mentioned at the roundtable? **Interviews with CM and EC** Which external factors influence the collaboration between CM and EC and thus, the respect, shared knowledge and shared goals?

4.4.3 Discussion

A critique of the process evaluation is that its findings can be difficult to generalize, because it investigates the complexities of local context and relations. However, in our design, we have focused on theoretical aspects of the intervention (e.g., shared decision making and relational coordination). By focusing on how these theories are put into local practice, we not only provide insight into the local circumstances of the IBBIS intervention but contribute to the broader theoretical discussion of these theories. The results of the process evaluation will thus both contribute to implementation research regarding the empirical field of sick leave beneficiaries return to work and contribute to the theoretical field of shared decision making and relational coordination, which expands beyond the empirical field.

4.5 Predictors for return to work Study

4.5.1 Background

When sick due to common mental disorders (or other disorders), it is common practice in Denmark, that the GP or other healthcare professionals make an estimate of the expected sick leave period. Clinicians sometimes stress difficulties in making precise judgments on the length of a sick leave period for people with mental disorders, and they wish to have more precise knowledge or instruments to predict the length of a sick leave period.

Currently, research points at different factors in different domains that might predict the length of a sick leave period. Some studies indicate that *illness-related* factors like diagnosis or symptom severity is a predictor (Dewa et al., 2011; S. E. Lagerveld et al., 2010; Nieuwenhuijsen et al., 2006). Psychological factors like return to work expectations seems to be a factor, which can predict the length of the sickness period (Brouwer, Reneman, Bültmann, Van Der Klink, & Groothoff, 2010) (Pedersen, 2016). The concept of self-efficacy, defined either as a general belief that one's actions are responsible for successful outcome (Schwarzer & Jerusalem, 1995), or specified to certain domains, e.g. return to work self-efficacy (Brouwer et al., 2011) or illness perception (Weinman, Petrie, Moss-Morris, & Horne, 1996) might be a potential predictive factor to investigate further.

The purpose of the *predictors for return to work study* is to investigate factors at baseline, which can predict return to work. If GPs or clinicians in mental health institutions acquire more knowledge about factors that typically do or do not influence the length of a sick leave period (caused by common mental disorders), it will likely improve their clinical estimates of a citizen's sick leave period.

4.5.2 Methods

The *predictors for return to work study* is based on the research question:

'*Which factors at baseline predict return to work to for people on sick leave due to common mental disorders?*'

The study contains two parts:

- A structured literature review
- An analysis of predictors for return work in the IBBIS sample.

4.5.2.1 Structured literature review

The aim of the structured literature review is to search for predictors or prognostic factors for return to work in the research literature. This will be done by searching the following databases for relevant literature: PubMed, PsycINFO, Cochrane, Cinahl, Embase, ProQuest and Web of Science.

4.5.2.1.1 Inclusion criteria & exclusion criteria

Studies included should:

- Have participants with anxiety disorders ranging from F.40-F.41.9 in ICD-10 *or*
- Have participants with depressive disorders, ranging from F.32.0- F.39.0 in ICD-10 *or*
- Have participants with stress-related disorders, either F.43.0 or ranging from F.43.2-F.4329 in ICD-10 or labeled non-diagnostic terms as stress, distress, burn-out or exhaustion disorder
- Search for predictors or prognostic factors for return to work, work ability, work function, rehabilitation, presenteeism and absenteeism

Studies will be excluded if:

- They are not able to adequately distinguish between results for different diagnosis (e.g. unipolar vs. bipolar depression)

4.5.2.2 Predictors for return to work - in the IBBIS sample

Citizens that are eligible for referral to the IBBIS mental health assessment are asked to complete an online questionnaire providing data regarding psychiatric symptoms e.g. depressive symptoms according to the BDI(Aaron T Beck et al., 1988) or stress symptoms according to Cohens Perceived Stress scale (PSS) (Cohen et al., 1983). Likewise, participants in the IBBIS-project provide other self-report and register data within domains like quality of life, self-efficacy or demographic data. Thus, data for this study is collected through the data collection for the RCT-studies, providing baseline data from 1188 participants. The study will either analyse predictors in the RCT-groups (Control group, mental health group, integrated group) by cox regression analysis or do analysis of trajectories in the RTW process. This part of the study is yet in the preparation and design phase.

If the results of this study are in line with some other studies pointing to return to work-self-efficacy as an important predictor for return to work, the study will include a discussion of the concept and its implications.

5 ETHICAL CONSIDERATIONS

A general ethical consideration behind the IBBIS-project is a paradox between a political decision to make health care treatment available in a free and equal fashion, for all citizens, and on the other hand analyses showing that this is in fact not happening, as previously described. Hence, in order to achieve the politically formulated goal in the legislation regulating the health care system in Denmark[8], steps must be taken. One of the obstacles is seemingly a lack of integration and timely referral between municipal job centre, who is responsible for case handling of sick leave benefit recipients, primary care, and regional mental health care centres (OECD, 2013). This project investigates an innovative way of organizing the integration of the interventions from the relevant sectors.

5.1 COMPETING INTERESTS

The researchers have no competing interests to declare.

The project is primarily funded by The Danish Agency for Labour Market and Recruitment. The agency has had a role in the design of the study (co-responsible for the selection of the target population and the design of selected interventions modalities). The funding agency will not take part of decisions regarding analysis, interpretation of the data, or publication of results.

5.2 OFFICIAL APPROVAL

The studies in the IBBIS project will be conducted in compliance with this protocol, the Helsinki Declaration in its latest form, good clinical practice guidelines, and national legislation on data management. The trial has been evaluated by the Regional Ethics Committees of the Capital Region of Denmark (# H-16015724), but the trial was not judged to be a biomedical trial and the need for ethical approval was waived. The protocol is registered on www.clinicaltrials.gov (# NCT02885519 and # NCT02872051), and any changes in the intervention or design will be submitted to the website. The Danish Data Protection Agency has approved the project, and it will be conducted in accordance with Danish data protection legislation.

The municipal case workers, who inform the participants, will have received enough information to sufficiently inform citizens about the psychiatric assessment study. This is ensured through regular briefings and distribution of written information to the involved municipal job centres. Likewise, care managers and other assessors, informing about the randomised controlled trials are prepared to inform sufficiently about the studies.

5.3 PARTICIPATION

Every participant in the trial has been informed about the objective of the study and the implications of participation by an IBBIS team member and has given oral and written consent to participate before enrolment. Potential participants are informed about expected risks and benefits from participating in the studies.

[8] https://www.retsinformation.dk/forms/r0710.aspx?id=152710

Participants will receive both written and verbal information about the relevant RCT and both oral and written consent is mandatory to participate in one of the RCT studies. Essential information on the following topics will be provided by the IBBIS health care professional immediately following the mental health assessment interview:

- Objectives and methods of the project
- Randomization to three interventions as described in figure 5
- Expected duration of the intervention
- Expected number of contacts and duration of these contacts
- Pros and cons of participation

Participation in the RCT studies is voluntary. Participants will be informed about their rights to withdraw from the study at any point and without consequences for their future treatment. If withdrawing, participants can decide how much information can be used in the study. Participants are informed that there are no expected side effects of the interventions and that he or she can withdraw from the study at any time without any consequences for future treatment, vocational services or social benefits.

The participant is informed that she or he can bring a relative to an additional information meeting, where an IBBIS team member will inform about the assessment and the implications for the participants and that she or he has the opportunity for a 24 hour reflection period before the decision to participate has to be made.

By consenting to participate in one of the RCT studies, the participant also consents to participate in related projects, e.g. the cost-effectiveness study and the process evaluation.

5.3.1 WITHDRAWAL FROM THE RESEARCH STUDIES

A participant in the IBBIS project can discontinue from the interventions and withdraw consent to participate in subsequent questionnaires at all times. A participant who no longer wishes to participate in one of the trials can withdraw his/her informed consent at any time without the need of further explanation, and this will not have any consequences for the participant's further treatment.

A participant who wants to withdraw from the allocated intervention has the following possibilities:

1. The participant will receive the subsequent follow-up questionnaires after the time of withdrawal. Data collected before that date will be analyzed.
2. The participant will NOT receive the subsequent follow-up questionnaires after the time of withdrawal, but register data will be collected and analyzed. Data collected before that date will be analyzed.
3. The participant will NOT receive the subsequent follow-up questionnaires after the time of withdrawal and register data will NOT be collected and analyzed. Data collected before that date will be analyzed.
4. The participant will NOT receive the subsequent follow-up questionnaires after the time of withdrawal and register data will NOT be collected and analyzed. Data collected before that date will be deleted.

5.4 ADVERSE EFFECTS FROM THE IBBIS INTERVENTION

Interventions similar to the IBBIS interventions have not previously shown increased risk of adverse effects. Symptom severity and suicidal ideation are nonetheless monitored by Care Managers with psychometric instruments assessing symptoms of depression, anxiety and stress. Monitoring of symptoms will take place every second week throughout the mental health care intervention to make sure deterioration in the participant's condition will be accommodated.

Starting work can be stressful for some participants. If return to work takes place during the intervention period, participants will be monitored closely by the involved IBBIS team member.

We will assess adverse effects from the IBBIS interventions by analysis of

- Symptoms with 4DSQ (Terluin et al., 2006a) at 6, 12 and 24 month follow-up
- Relapse at 24 months follow-up
- Suicidal thoughts, plans or actions assessed using the BDI at 6, 12 and 24 months
- Death (natural, accident, suicide, homicide, violence or unknown): Obtainable at Death Register 6, 12 and 24 months after baseline
- Life-threatening conditions for reasons other than suicide

Besides the general ethical considerations there are specific ethical considerations in some studies:

5.5 ETHICAL ISSUES REGARDING THE MENTAL HEALTH ASSESSMENT STUDY

The main ethical considerations of the mental health assessment study are the following issues:

1) Time consumption for the individual
2) Risk of different assessment results
3) Risk of incorrect assessment results

Reg. 1)
Most individuals have already received a medical evaluation by their GP and will have to spend an hour completing the assessment questionnaires and several hours on the assessment interview with the assessor. Some individuals may find this troublesome and perhaps even stressful. Yet, we do not consider it to pose any mental health risk.

Reg. 2)
Some individuals might be assessed differently in the IBBIS mental health evaluation, than how the GP assessed them, conveying possible frustration. Yet, we strive to maintain a high level of professional standards, by continuous training and supervision of assessors. Furthermore, in this training, we emphasize the importance of thoroughly explaining the possible difficulties and uncertainties in diagnosing mental health disorders, hopefully entailing an understanding and hence acceptance of such assessment result differences.

Reg. 3)
There is a risk of incorrect diagnosing in all mental health assessment, as well as almost all other medical assessments. We do not consider this risk as being higher in the IBBIS mental health

assessment than what individuals might otherwise be exposed to.

5.6 Ethical issues regarding The predictors of return to work study

The predictors for return to work study investigates both intrapersonal factors like self-efficacy or quality of life, sociodemographic factors like levels of education or work-related factors as possible predictors for return to work. There are ethical considerations with regard to the individuals own responsibility to be able to return to work, if predictive factors are mainly interpersonal. These results could possibly impose an unsound pressure from work place or employment consultants on the individual, already having difficulties related to their mental health condition.

6 TRIAL TIMELINE, PLAN FOR PUBLICATION, AND DISSEMINATION

The timeline for the preparation, data collection and publication of the IBBIS studies is described below.

The Mental Health Assessment study

Preparation and design: January 2016 – February 2018
Data collection: March 2016 – March 2019
Analysis and publication: April 2018 – July 2019

RCT 1 and RCT 2

Preparation and design: August 2015 – March 2016
Data collection: April 2016 – April 2020
Analysis and publication: May 2018 – October 2020

Results from 6-, 12- and 24-month follow-up will be published in international journals and in two Ph.D.-theses. Positive, as well as negative and inconclusive results will be published.

Process Evaluation Study

Preparation and design: August 2016 – February 2017
Data collection: March 2017 – July 2018
Analysis and publication: August 2017 – July 2019

Cost-Effectiveness study

Preparation and design: February 2016 – April 2019
Data collection: April 2016 – April 2020
Analysis and publication: July 2019 – September 2020

Predictors for return to work study

Structured literature review:

Preparation and design: March 2017 – September 2017
Data collection: October 2017– May 2018
Analysis and publication: June 2018 – October 2018

Predictors in the IBBIS sample:

Preparation and design: June 2018 – March 2019
Data collection: April 2016– March 2018
Analysis and publication: April 2018 – July 2018

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8 PROTOCOL REVISION HISTORY

Version 1 was a study protocol in Danish language, finished prior to inclusion, commencing spring 2016. Two study design articles were published in July 2017(Poulsen et al., 2017a; Poulsen, Fisker, Hoff, Hjorthøj, & Eplov, 2017b), referred to as a "Version 2" of the study protocol on the official organization's webpage[9].
Version 3 (~3.0) was an updated version of Version 1 (in English language), finished and published in March 2018.

This Version 3.1 is similar to Version 3.0, with only correction of language, links and lay-out, etc., published on clinicaltrials.org in July 2019, approx. simultaneously with the detailed Statistical Analysis Plan [version 1.0].

[9] https://www.psykiatri-regionh.dk/Kvalitet-og-udvikling/udvikling/ibbis/Sider/IBBIS-forskning.aspx