Tampere University

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The Case Study of a Real-world Implementation Programme of Two Evidence-based Practices

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ACADEMIC DISSERTATION
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Dedication

I dedicate this dissertation to Professor Emerita Eeva Nordman, my superior in my first workplace after graduating from medical school. Her welcoming address to the youngest newcomer is ingrained in my memory "we do not expect you to have know-how, we expect you to ask".

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Ähtäri, 22nd November 2021

ABSTRACT

Real-world programmes for implementing evidence-based practices (EBPs) are intended to put them into place and practice thereby improving the efficacy and quality of health care. This aim as such is widely accepted among various stakeholders. Yet such programmes frequently encounter various challenges, for instance resistance among their intended addressees, undermining the ultimate output of the programmes. In addition, the achievements tend to fade in long-term.

The Ostrobothnia Depression Programme (ODP) was a real-world programme with two arms and was conducted 2009-2013 in public psychiatric secondary care in the Finnish region of South Ostrobothnia. The primary aim was to implement two EBPs, behavioural activation and motivational interviewing, to enhance the treatment processes of depressed patients with possible comorbidities and bridge the deficit in the delivery of integrated treatment approach of comorbid substance abuse among psychiatric patients. The secondary aim was to conduct an effectiveness study of these two EBPs. The ODP was introduced in five units, of which four were outpatient agencies and one an acute ward. The therapists (nurses, practical nurses and psychologists) employed in the units were the intended end users of the EBPs.

This dissertation reports the case study on the implementation arm of the ODP. The research questions were the following: will the EBPs remain in use after the end of the programme and to what extent, and what factors and policies will facilitate or inhibit the adoption of the EBPs. The ultimate objective was to extract beneficial information for health managers and programme executives to be exploited in future programmes.

Three different types of methodological approaches were used for the evaluation: longitudinal quantitative and cross-sectional mixed-methods surveys with the therapists; focus group interviews with the programme executives, clinical head and team leaders; and analysis of the programme plan. Appropriate statistical methods were used for calculating the therapists' adoption activity regarding the target EBPs and the associations between the adoption activity and several possible explaining factors. The programme plan and data obtained from the focus group interviews were analysed deductively applying two different frameworks, both based on

Normalization Process Theory. Other qualitative data was analysed according to the principles of inductive content analysis.

Thirty-three out of 84 ODP trained therapists responded to the final survey between four and five months after the end of the ODP. The main reasons for the relatively low response rate were staff turnover and withdrawal from the ODP. About a third of the responding therapists were still using the EBPs in their work. Indeed, three quarters of these had treated only one or two patients with these interventions during the preceding three months, which is quite a low number in terms of the patients they see in their everyday work. Positive experience in using these interventions was associated with their adoption. The favourable actions of the leaders and peers were reported to facilitate the adoption. After the training workshops, optional case consultations in groups were provided monthly for a four-year period. About a half of the therapists who responded to the final survey had used this option at least once. Some of therapists called for more thorough training and decentralized clinical support in applying the target EBPs.

The analysis of the programme plan revealed that the plan deployed strategies enabling the keen therapists to embrace the EBPs. This was achieved with quite a low and in-house resources without any external funding. Yet the plan lacked sustainability strategies, which would have been needed for the long-term maintenance of the EBPs at organizational level.

Thirteen out of 14 invitees participated in the focus group interviews. The analysis of the interviews revealed that the programme plan and the process of conceiving it did not pay sufficient attention to the high variation in the receptivity between the units, which varied from resistance to acceptance. Collaboration with the team leaders regarding the creation of the programme plan took place at quite a late stage, and this likely affected the contents of the plan and undermined the buy-in of the ODP among part of the team leaders and participating therapists. The creation of the programme plan relied on individual expertise and local knowledge, no theory-based model or framework were applied.

The ODP programme plan offers a feasible base for reproduction, but with some important amendments. The penetration of the target EBPs among the participating therapists and thus the organization being weaker than expected emphasizes the importance of paying close attention to enhancing future implementation programmes. Involving the team leaders early in the preparation phase of EBP implementation programmes is of the utmost importance since they are the central influential stakeholder in the implementation of various organizational strategies. Another critical issue is investing in the organization's capacity and practices for

maintaining the implemented EBPs over time, especially in case of staff turnover. The pursuit of increasing EBPs is an ongoing process and pertains to a wide range of EBPs across a health care organization. Consequently, the focus should be not only on individual EBPs, but also on the organization's structures and management systems with equal effort. The aim is that management systems and implementation strategies would also be evidence-based. Within implementation and management sciences, there are currently available several evidence-based theories, models and frameworks or other instruments for the purpose. Applying them is highly recommended.

TIIVISTELMÄ

Näyttöön perustuvien menetelmien (engl. evidence-based practice, EBP) käyttöönotolla pyritään parantamaan terveydenhuollon vaikuttavuutta ja laatua. Tavoite on laajalti hyväksytty. Hankkeet menetelmien käyttöönottamiseksi kohtaavat usein haasteita, kuten vastustusta eri sidosryhmien taholta, mikä heikentää hankkeiden tuloksellisuutta. Saavutetut tulokset usein myös kuihtuvat ajan myötä.

Masennustalkoot II -depression hoidon tutkimus- ja kehittämishanke (MT II -hanke; engl. Ostrobothnia Depression Programme, ODP) toteutettiin psykiatrian klinikassa Etelä-Pohjanmaan sairaanhoitopiirissä vuosina 2009–2013. Hankkeessa oli kaksi haaraa: 1) kahden näyttöön perustuvan lyhytpsykoterapeuttisen hoitomenetelmän käyttöönotto eli implementaatio ja 2) näiden menetelmien vaikuttavuustutkimus. Ensisijainen tavoite oli kehittää depressiosta ja mahdollisista oheishäiriöistä kärsivien potilaiden hoitoprosesseja. Implementoitaviksi menetelmiksi oli valittu käyttäytymisen aktivointi -menetelmä (engl. behavioural activation, BA) depression hoitoon ja motivoiva haastattelu (engl. motivational interviewing, MI) täydentämään hoitoa integroidun hoitomallin mukaisesti, jos potilaalla todettiin depression lisäksi merkittävää päihteiden käyttöä (kaksoisdiagnoosi). Toissijainen tavoite oli näiden menetelmien vaikuttavuustutkimuksen toteuttaminen kliinisessä potilasaineistossa.

MT II -hanke toteutettiin viidessä erikoissairaanhoidon yksikössä: neljällä avohoitopoliklinikalla ja yhdellä akuuttipsykiatrian osastolla. Koulutusta BA:n ja MI:n käyttöön tarjottiin osallistuvissa yksiköissä työskenteleville sairaanhoitajille, mielenterveyshoitajille ja psykologeille.

Väitöskirjassa tarkastellaan MT II -hankkeen toteuttamisen käytäntöjä ja arvioidaan tuloksia sekä osallistuneiden työntekijöiden näkökulmasta että organisaatiotasolla. Tutkimuskysymyksinä olivat 1) missä määrin kyseiset hoitomenetelmät on otettu käyttöön hankkeen aikana ja ovatko ne käytössä vielä ohjelman päättymisen jälkeen sekä 2) mitkä tekijät ja käytänteet edistivät tai haittasivat uusien hoitomenetelmien omaksumista. Tutkimuksen tavoitteena oli tuottaa tietoa, joka auttaisi kehittämään terveydenhuollon johtamiskäytäntöjä ja tulevia hankkeita.

Tutkimuksessa käytettiin kolmea erilaista metodologista lähestymistapaa: hankesuunnitelman analyysiä, pitkittäis- ja poikkileikkauskyselyjä työntekijöille sekä kohderyhmähaastatteluja (hankeryhmä, psykiatrian klinikan johtaja ja yksiköiden lähiesimiehet). Soveltuvia tilastollisia menetelmiä käytettiin laskettaessa työntekijöiden aktiivisuutta BA:n ja MI:n käytössä sekä arvioitaessa käyttöaktiivisuuden ja mahdollisten selittävien tekijöiden välistä yhteyttä. Hankesuunnitelma ja haastatteluista saatu aineisto analysoitiin deduktiivisesti Normalization Process Theoryn käsitteistöä vasten. Muu laadullinen aineisto analysoitiin induktiivisen sisällönanalyysin periaatteiden mukaisesti.

Hankkeessa koulutettiin 84 työntekijää. Näistä vain 33 vastasi viimeisiin tutkimuskyselyihin 4–5 kuukautta hankkeen päättymisen jälkeen. Tärkeimmät syyt melko matalaan vastausaktiivisuuteen olivat henkilöstön vaihtuvuus ja joidenkin työntekijöiden vetäytyminen hankkeesta. Noin kolmannes vastaajista käytti menetelmiä työssään hankkeen päättymisen jälkeenkin. Tosin heistä noin kolme neljästä oli käyttänyt menetelmiä vain 1–2 potilaan hoidossa kolmen viimeksi kuluneen kuukauden aikana, mikä on varsin vähäinen lukumäärä suhteessa depressiosta kärsivien potilaiden määrään heidän tavanomaisessa potilaskunnassaan. Myönteinen kokemus näiden toimenpiteiden käytöstä oli yhteydessä niiden omaksumiseen. Esimiehiltä ja työtovereilta saatu tuki edisti menetelmien omaksumista.

Työpaja-tyyppisen menetelmäkoulutuksen jälkeen oli mahdollisuus osallistua ryhmämuotoiseen työnohjaukseen, jossa käytiin läpi potilaskonsultaatioita ja syvennettiin menetelmätaitoja. Työnohjausta järjestettiin kuukausittain neljän vuoden ajan. Noin puolet loppukyselyihin vastanneista työntekijöistä oli osallistunut työnohjaukseen vähintään kerran. Osa työntekijöistä olisi kaivannut perusteellisempaa koulutusta hoitomenetelmien käyttöön sekä matalan kynnyksen paikallista tukea niiden soveltamisessa päivittäisessä arkityössään.

MT II -hankkeessa käytettiin strategioita, jotka tukivat asiaan myönteisesti suhtautuvia työntekijöitä pääsemään alkuun uusien hoitomenetelmien oppimisessa ja soveltamisessa omassa arkityössään. Tämä saavutettiin kohtuullisen vähäisillä resursseilla. Hanke toteutettiin oman organisaation henkilöresursseilla ja ilman ulkopuolista rahoitusta. Hankesuunnitelmasta puuttui ylläpitostrategiat, jotka olisivat olleet tärkeitä menetelmien jatkuvuuden varmistamisessa organisaatiotasolla.

Kolmetoista henkilöä 14:sta kohderyhmähaastatteluihin kutsutusta osallistui haastatteluihin. Haastatteluissa nousi esille, että hankesuunnitelman valmistelussa ei kiinnitetty riittävästi huomiota suureen vaihteluun muutosvalmiudessa. Vaihtelua ilmeni torjunnasta vastaanottavuuteen. Yksiköiden lähiesimiehet kutsuttiin

yhteistyöhön vasta hankesuunnitelman viimeistelyvaiheessa. Tämä varsin myöhäisessä vaiheessa tarjottu mahdollisuus vaikuttaa suunnitelman lopulliseen rakenteeseen ja sisältöön todennäköisesti heikensi hankeen hyväksyttävyyttä lähiesimiesten ja muun henkilöstön silmissä. Hankesuunnitelman valmistelussa tukeuduttiin siihen osallistuvien henkilökohtaiseen asiantuntemukseen ja paikallistuntemukseen. Mitään teoriapohjaista mallia tai viitekehystä ei hyödynnetty.

MT II -hankesuunnitelma tarjoaa hyvän mallin tulevien näyttöön perustuvien menetelmien implementaatiohankkeiden pohjaksi. Lähijohtajien merkitys näyttöön hankkeiden toteuttamisessa ja tulosten jatkuvuuden varmistamisessa on niin keskeinen, että heidät on syytä ottaa mukaan hankkeiden valmisteluun jo varhaisessa vaiheessa. On tärkeää panostaa organisaation kykyyn ylläpitää osaamistasoaan, koko laajassa kirjossa implementoimiaan näyttöön perustuvia hoitomenetelmiä, myös henkilökunnan vaihtuessa. Nämä asiat tulee huomioida organisaation pysyvissä johtamisjärjestelmissä ja rakenteissa. Tavoitteena on, että myös johtamisen ja hanketyön käytännöt olisivat näyttöön perustuvia. Sekä implementaatiotutkimuksen että johtamisen tieteenalat tarjoavat tähän teorioita, malleja ja muita työkaluja.

CONTENTS

List of Figures

List of Tables

ABBREVIATIONS

AIFs	Active Implementation Frameworks
CT	Cognitive therapy
CBT	Cognitive behavioural therapy
CFIR	Consolidated framework for implementation research
EBI	Evidence-based intervention
EBT	Evidence-based treatment
EBP	Evidence-based practice
ESP	Environmental Skill-building Programme
FCP	Family Caregiver Programme
FLS	Fracture liaison services
ICS	Intervention Characteristics Scale
LMX	Leader-member exchange form of leadership
LPV	Lung-protective ventilation
LPV CDS	Lung-protective ventilation clinical decision support
NPT	Normalization Process Theory
ODP	Ostrobothnia Depression Programme
ODS	Ostrobothnia Depression Study
ODS-I	Ostrobothnia Depression Study related Implementation Programme
TMFs	(Implementation) theories, models and frameworks
UAI	Using Activity Scale

ORIGINAL PUBLICATIONS

(I) Lindholm, L. H., Koivukangas, A., Lassila, A., & Kampman, O. (2015). Early assessment of implementing evidence-based brief therapy interventions among secondary service psychiatric therapists. *Evaluation and Program Planning*, *52*, 182–188. https://doi.org/10.1016/j.evalprogplan.2015.05.004

(II) Lindholm, L. H., Koivukangas, A., Lassila, A., & Kampman, O. (2019). What is important for the sustained implementation of evidence-based brief psychotherapy interventions in psychiatric care? A quantitative evaluation of a real-world programme. *Nordic Journal of Psychiatry*, *73*(3), 185–194. https://doi.org/10.1080/08039488.2019.1582698

(III) Lindholm, L. H., Komulainen, J., Lassila, A., & Kampman, O. (Submitted 9th Nov, 2021). Making implementation programmes better. Mixed-methods case study of an implementation process for two evidence-based brief psychotherapies.

(IV) Lindholm, L. H., Laitila, M., Lassila, A., & Kampman, O. (2020). Importance of congruence between communicating and executing implementation programmes: a qualitative study of focus group interviews. *Implementation Science Communications*, *1*(1), 1–11. https://doi.org/10.1186/s43058-020-00090-w

1 INTRODUCTION

Finnish health care has performed and positioned itself well among its European and other Western compeers (Björnberg & Yung Phang, 2019; Fullman et al., 2018). Its quality has been acknowledged. We have achieved this with current policies, structures and managerial practices. We have reason to be proud of our health care. However, the world is constantly changing and research yields evidence-based practices to be put in place and practice to benefit our patients. The more we strive for quality, the more profound and valid changes in policies, structures and managerial practices must we accomplish. This means that change cannot be achieved solely by individual interests or drawing on common sense. The decisions must be based on evidence whenever such is available (Walshe & Rundall, 2001). The change must pervade the organization systematically to achieve the desired outcome. The above concerns the organizations, administrators, managers, executives etc. at the spearhead. The grassroots staff comes only thereafter. The transformation depicted represents a major cultural change throughout an organization, which is always a challenging business.

The focus of implementation science is undergoing transition towards the implementation of evidence-based implementation strategies more comprehensively than is the case today (Westerlund et al., 2019). Originally the term 'evidence-based practice' referred to the various treatments and other health interventions of proven efficiency (Thyer, 2004). The domain of the term has expanded to extend to other practices, such as managerial practices and practices of carrying out an implementation or change programme (Walshe & Rundall, 2001; Westerlund et al., 2019). To date, the research has yielded a wide range of theories, models and frameworks that are feasible in real-world settings to be drawn on by organizational managers and other decision-makers while striving to pilot their organizations towards the next level in delivering evidence-based health care services (Esmail et al., 2020; Nilsen, 2015). Implementing these innovative managerial practices has turned out to be as tricky a business for the managers as the implementation of innovative health care interventions is to the grassroots staff (Walshe & Rundall, 2001; Westerlund et al., 2019).

During the progress of the present doctoral research, the clinical head of the department expressed the following wish regarding the scope: "Explore and expose information on our practices that we can make of use in the organization and future programmes". This dissertation was written keeping that mission on mind. Thus, reading this essay would be highly beneficial for managers, executives etc. in health care. Grassroots professionals may also find it valuable as it validates their fatigue due to programmes that come and go, which has been too common a state of affairs. The mission of this dissertation is to propose the steps for more fruitful programmes and other managerial initiatives in the future. In fact, the question is about management systems and changes therein.

2 OVERVIEW OF IMPLEMENTATION SCIENCE

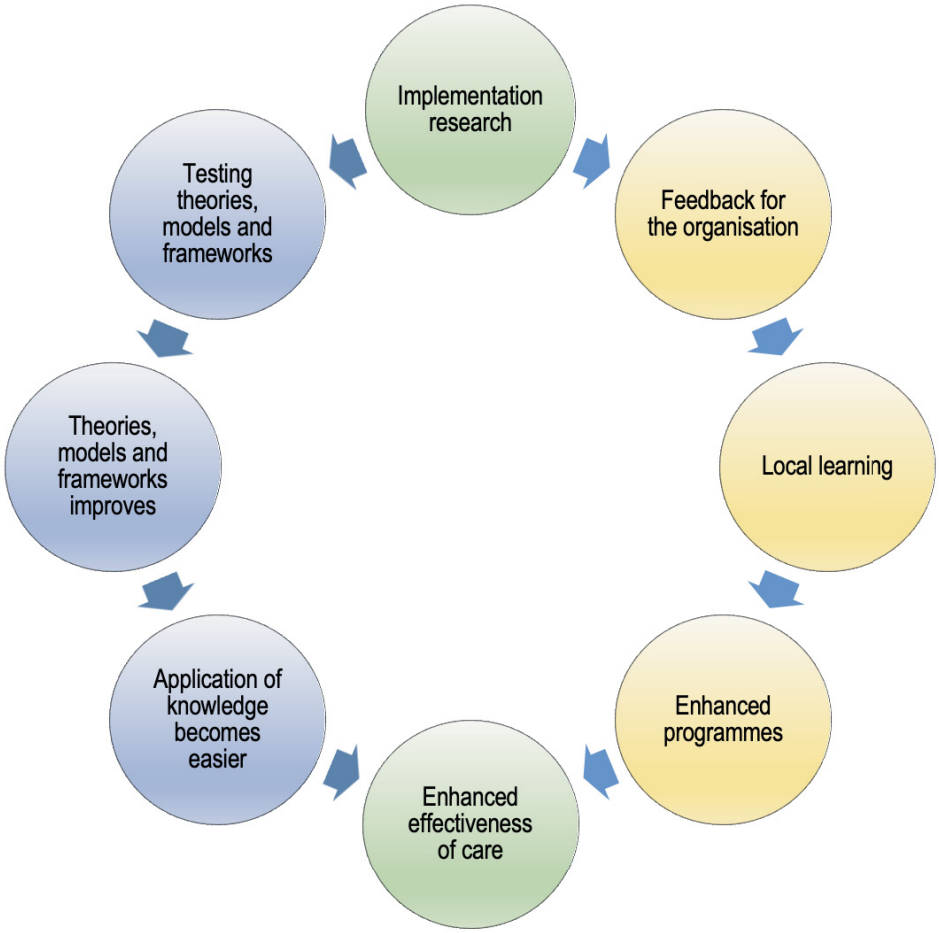
Implementation science (IS) aims to provide evidence-based instruments for taking up innovations in everyday work (Fixsen & Ogden, 2014; Haines et al., 2004; Tabak et al., 2012). The term 'innovation' refers to anything that is new to an individual or organization (Fixsen & Blase, 2020). In this dissertation, the innovations in question are evidence-based practices (EBPs), interventions (EBIs) or treatments (EBTs). The acronym EBP is applied to refer all of these from now on. IS is still a relatively young discipline, which explains the existence of quite a large number of overlapping terms and definitions (Straus et al., 2009). IS can be defined as a sub-concept of 'knowledge translation' (Esmail et al., 2020; Straus et al., 2009; Wensing & Grol, 2019). Knowledge translation refers to the entire process of transforming scientific yields into end products applicable in everyday work and, further, the promotional work of putting them into service actively (Straus et al., 2009). The endeavour of implementation is also referred to as bridging the knowledge-practice gap. IS covers the dissemination of information on various EBPs and also the more active implementation phase of these (Wensing & Grol, 2019). However, the distinction between different phases of this translation process is rather gradual than sharp.

The scope of IS extends from individual grassroots professional to high-level political administration (Vedung, 1997b; Wensing & Grol, 2019). The present thesis confines its scope to phenomena within health care provider organizations and initiatives launched by their managements. The ultimate aim is to make a contribution to the constantly ongoing hard work of improving the quality of processes and effectiveness of care by implementing various EBPs.

Health care is a complex environment with multiple interdependent internal and external components, each of which supports or impedes efforts to increase the use of EBPs (Beidas et al., 2016; Beidas & Kendall, 2010; Damschroder et al., 2009; Mossialos et al., 2016; Vedung, 1997a). Public health care organizations are responsible for providing services of as high a standard as possible with the resources the central government has allocated to them. In this sense, an individual health care organization has a mediating role between the government and the population, and individual professionals therein are the actors carrying out the organization's

mission. The management of the organization is responsible for ensuring that the mission is accomplished. However, despite increasing numbers of EBPs and related clinical guidelines there reportedly persists a substantial gap in their implementation in routine care (Girlanda et al., 2017; Haines et al., 2004; Mickan et al., 2011). Examining the functioning within an individual organization exposes a complex network of mutual interactions and mediating factors. IS provides us with various theory-based approaches to enhance our competence to navigate and operate when striving for the best possible outcomes in this complex environment (Figure 1).

Figure 1. The mission of the implementation science.



2.1 Complex intervention

Just as health care itself is a complex context, so also are complex the everyday practices or interventions applied therein. It is appropriate that these be as comprehensively evidence based as possible. Complex interventions contain several components interacting in a complex way, as presented in more detail in Table 1. (Craig et al., 2008). Many complex interventions are virtually packages of several single minor interventions, each of which may be either simple or complex. The transition from simple to complex interventions is a gradual process. For instance, a blood pressure measurement can be seen as a simple intervention. Instead, a screening programme for hypertension aimed to decrease the burden related to cardiovascular diseases in the population is a highly complex intervention (Schmidt et al., 2019). Diagnosing and treating a single patient with hypertension falls somewhere in-between but is still essentially more of a complex than a simple intervention. Gathering all the medical information required to set a diagnosis of hypertension varies individually in degree of difficulty. A higher level of complexity may be met while trying to convince the usually asymptomatic patient about the importance of making necessary changes in her lifestyle and starting to take regular medication – not to mention whether the patient would actually implement such life changes successfully and sustainably. Another example of a complex intervention could be bone fracture diagnostics and treatment. In principle, an x-ray and the setting of a single fractured limb are not such a complex intervention. Instead, ascertaining whether there is some predisposing condition that should be controlled for in the longer term to prevent re-fractures is a complex intervention. Within psychiatry, all psychosocial interventions, such as motivational interviewing and behavioural activation, are examples of complex interventions. These two examples are introduced in more detail later in Chapter 4.

Table 1. Characteristics of a complex intervention.

1.	Number of interacting components within the experimental and control interventions
2.	Number and difficulty of behaviours required by those delivering or receiving the intervention
3.	Number of groups or organizational levels targeted by the intervention
4.	Number and variability of outcomes
5.	Degree of flexibility or tailoring of the intervention permitted

2.2 Examples of implementation programmes for complex interventions

An implementation programme of a novel complex intervention is a planned episodic undertaking to institutionalize the intervention into an organization's routine clinical practices. Although this doctoral research took place in the context of psychiatry and concerns the implementation of two psychosocial interventions, the following examples from the context of somatic health care will demonstrate that the related phenomena are valid and shared across specialities.

The Environmental Skill-building Program (ESP) (Gitlin et al., 2010) and the Family Caregiver Program (FCP) (Stevens et al., 2012) are two EBPs to be delivered in homecare for elderly people. Both are intended to support a shared functioning of the patient with dementia and her home caregiver, thereby reducing the caregiver's burden, which, in turn, supports her ability to continue in charge. Trained professionals coach the caregivers to onboard the related various strategies and interventions. Gitlin et al. (2010) reported a two-year translational or pilot programme for accommodating the ESP into private practice in the Fox Rehabilitation Agency in the USA. The agency employed 120 professionals eligible by profession to be trained as ESP counsellors. Of these, 30 met the carefully established criteria to be invited into the translational phase and eventually 23 accepted the invitation. After the two-year programme, a 70% adoption rate was achieved among this highly selected and motivated sample. Gitlin et al. (2010) concluded that their translational phase programme was of vital importance before a full agency-wide implementation was feasible. It served to reveal possible pitfalls that had to be avoided in the design of the ESP expansion programme. Stevens et al. (2012) reported a one-year programme for establishing a patient referral system to FCP counsellors in one large hospital (9 units or teams) and one ambulatory internal medicine primary care clinic (6 units or teams) within a large health care system, Scott & White Healthcare, in the USA. The programme was aimed at implementing the referral system, namely getting the nurses to identify FCP eligible patients and their caregivers and offer them an opportunity to join the programme. A separate staff, in turn, delivered the intervention itself, which was not under scope in this study. At the unit level they achieved 100 % adoption rate in terms of accepting the referral system.

Both reports above about ESP and FCP report that their implementation efforts were labour-intensive, involving key actors from the programmes and units involved. Open negotiations with grassroots professionals and their leaders to achieve a shared

understanding were indispensable to success. These collaborations were initiated early and had an impact on perceptions of what would be possible and by what means. The everyday environment and working structures had to be respected. The novel processes had to be refined to match the infrastructures of the agencies or units while still preserving their core elements to ensure effectiveness. Diverse human assignments and technical processes needed to ensure the fluent accessibility of information materials and smooth patient flow were identified and accommodated. For instance, a system of prompts was created and integrated into the electronic medical records to support the staff in identifying patients eligible for FCP. Both programmes took into consideration the non-stable organizational conditions involving staff turnover. Addressing this challenge entailed several measures. For newcomers a continued onboarding or training programme in the local practices had to be integrated into the routine organizational policies. Also, a need for booster training in ESP was found if a professional had one month or longer delay between the initial training and its actual delivery. Receiving the buy-in from the leadership as well as the leaders' activity in maintaining the delivery of interventions among their staff were critical to ensure the sustainability of the novel practices. Finally, the sustained delivery of both ESP and FCP were dependent on the availability of adequate resources also after the active implementation phase was closed. In context of the USA, this was ensured by adapting the delivery of the interventions according to the prevailing health care funding mechanisms. (Gitlin et al., 2010; Stevens et al., 2012).

Fracture liaison services (FLS) is an EBP referring to a comprehensive health care practice intended to decrease the risk for re-fractures in patients with fragility bone fracture (Mitchell et al., 2016). FLS gathers activities across primary and secondary care as well as elderly care into a seamless patient flow through the FLS process. It has obtained worldwide evidence to effectively improve the quality of diagnostics and treatment of osteoporosis and also in preventing secondary fracture as well as has moreover been calculated to be cost-effective (Mitchell et al., 2016). The positive impacts of FLS have been achieved only with the implementation of all related elements, namely the diagnostic facilities and human resources needed to accurately complete the care process. There are two demonstrably crucial aspects to note in building up FLS and running it sustainably: the performance of assigned key actors and onboarding of the newcomer professionals. Two key actors were identified: a co-ordinator and service development leader. Both titles may have more than only one individual operator. The task of the co-ordinator is to persuade the multiple organizations and related stakeholders to invest in building up a shared FLS process

and to organize their patient flow accordingly. The task assigned to the service development leader is to evoke the buy-in among the professionals across involved organizations and clinics as well as oversee and guide the process of establishing the clinical process. The above is not enough since the staff turnover has been shown to undermine the stable delivery of FLS. Consequently, the long-term vitality of FLS entails that the newcomers are also carefully instructed in it, both grassroots professionals and clinical supervisors.

Lung-protective ventilation (LPV) is an EBP to improve the clinical outcome of patients treated in intensive care units (ICU) for acute respiratory distress syndrome (ARDS) (Thompson et al., 2017). Intermountain Healthcare (Intermountain) is a system of 24 hospitals in the USA with 17 ICUs. Intermountain has been one of the early innovators in LPV strategies. They have continued with the development and created a tool for clinical decision support (CDS) integrated into the electronic medical record (LPV CDS tool). A system-wide implementation programme of this tool will be aimed at to standardize the practices of applying the LPV and increase overall LPV adherence across all their ICUs (Knighton et al., 2020). To prepare this extensive implementation effort, Knighton et al. (2020) recently conducted and reported a mixed-methods survey on barriers and facilitators in the utilization of the LPV and LPV CDS tool among the critical care staff in Intermountain. Based on the results, they divided the ICUs into sites of low, moderate and high adherence. The major facilitator was that LPV and the LPV CDS tool was comprehensively available to all mechanically ventilated patients. Barriers included a persistent gap between clinician-expressed intention to use the LPV and its actual use, the sense of reduced autonomy related to using a computerized tool, the risk of miscommunication between professionals representing two different personnel groups central in ventilation management and lack of indicators to measure the use of LPV and LPV CDS tool at the organization level.

All the reports above indicate that a shared understanding and vision among all key stakeholders about *what*, *how* and *who* regarding an EBP implementation effort are crucial conditions for its success. A profound understanding of the various social phenomena related to different reforms and addressing them carefully may nurture a favourable climate towards the reform. Onboarding of newcomers is one critical factor in maintaining the desired practices. Finally, programmes come and go. A fundamental prerequisite for the long-term vitality of the desired programme outcomes is that the respective resources needed, whatever these may be in each individual case, to maintain the novel practices must be incorporated into more

stable organizational infrastructures rather than dependent on temporary programmes.

2.3 Theoretical approaches

An implementation programme comprises several strategies and related activities to yield as wide (as deemed purposeful) and long-lasting EBP implementation as possible in the organization. However, there is evidence that most implementation programmes are only partially successful in achieving their objectives and moreover that these gains tend to fade over time (Birken et al., 2020; Haines et al., 2004; Hall et al., 2016; Stirman et al., 2012).

Shortfalls in implementation efforts have motivated the identification of factors and processes affecting the success of implementation programmes. The accumulated knowledge has been further evolved as theories, models and frameworks (TMFs) to improve the effectiveness of programmes (Esmail et al., 2020; Nilsen, 2015). Nilsen (2015) divides the TMFs into five categories: process models, determinant frameworks, classic theories, implementation theories and evaluation frameworks. Esmail et al. (2020) add a sixth category for hybrid approaches. Different TMFs shed light on the topic from different directions and thus complement each other. Next, three diverse TMFs will be introduced: Consolidated Framework for Implementation Research (CFIR), Active Implementation Frameworks (AIF) and Normalization Process Theory (NPT).

CFIR is a much referred to determinant framework providing a collection of 39 constructs and their definitions (Damschroder et al., 2009). These constructs have been substantiated as significant factors in terms of the success of implementation programmes. The constructs are divided into five major domains: intervention characteristics, outer setting, inner setting, characteristics of the individuals involved and the process of implementation. Indeed, the constructs themselves are inherently multicellular and interact with each other a complex way. There is currently available a webpage providing useful tools for the application of the CFIR both in the planning phase of an implementation programme and in the retrospective evaluation of a programme (CFIR Research Team-Center for Clinical Management Research, 2021).

Active Implementation Frameworks (AIFs) is a package covering 1) usable innovations, 2) implementation teams, 3) implementation stages, 4) implementation drivers, 5) improvement cycles and 6) systemic change (Fixsen & Blase, 2020).

'Usable innovations' refers to technical external quality factors that make an innovation feasible and detectable. 'Implementation teams' specifies a task force needed to introduce the innovation in practice, keep it going and offer peers some low-threshold clinical support. 'Implementation stages' defines the step-by-step structure of an implementation process: exploration, installation, initial implementation and full implementation. 'Implementations drivers' defines three aspects of the infrastructure needed for the implementation happen: a) competency drivers that ensure the acquisition of the skills that the intended users need to operate with the innovation, b) organization drivers that support an organization to create a favourable environment to incorporate innovation and sustain it and c) leadership drivers that guide the leaders in their managerial actions to facilitate the staff to incorporate the innovation in their everyday work. 'Improvement cycles' proposes carrying out the implementation activities in smaller iterative steps instead of a single big effort, as the stepwise progression enables the accumulation of experience and making improvements along the process. 'Systemic change' means that when individual professionals' or teams' ways of working change, the context or organization must also change in a way that facilitates the staff in carrying out their reformed everyday work. There is a free webpage currently available that provides tools for the application of the AIFs and videotaped lessons (National Implementation Research Network, n.d.).

NPT is an action theory providing a sociological perspective on an implementation process (May et al., 2015; May & Finch, 2009). It focuses on explaining the individual and collective work and mental effort required to achieve the successful and sustained implementation of a desired practice. NPT offers two procedures to master these complex phenomena: four core constructs that shed light on the social transactions around an implementation process and three sub-processes needed for institutionalizing a new practice into an organization's normal practices and sustaining it there. The four core constructs – *coherence, cognitive participation, collective action, reflexive monitoring* – and their components are presented in Table 2. The three sub-processes – *implementation, embedding, integration* – and the operational intentions loaded on these with a few examples of respective concrete strategies or activities are presented in Table 3. A currently available webpage provides tools for the application of NPT core constructs in planning and conducting implementation research (May et al., 2015).

Table 2. Core constructs of Normalization Process Theory (NPT) and their respective components.

Core construct and its components	Description
Coherence	The sense-making work that people do individually and collectively when they are faced with the problem of operationalizing some set of practices
Differentiation	An important element of sense-making work is to understand how a set of practices and their objects are different from each other.
Communal specification	Sense-making relies on people working together to build a shared understanding of the aims, objectives, and expected benefits of a set of practices.
Individual specification	Sense-making has an individual component too. Here participants in coherence work need to do things that will help them understand their specific tasks and responsibilities around a set of practices
Internalization	Sense-making involves people in work that is about understanding the value, benefits and importance of a set of practices
Cognitive participation	the relational work that people do to build and sustain a community of practice around a new technology or complex intervention.
Initiation	When a set of practices is new or modified, a core problem is whether or not key participants are working to drive them forward.
Enrolment	Participants may need to organize or reorganize themselves and others in order to collectively contribute to the work involved in new practices. This is complex work that may involve rethinking individual and group relationships between people and things.
Legitimation	An important component of relational work around participation is the work of ensuring that other participants believe it is right for them to be involved, and that they can make a valid contribution to it.
Activation	Once it is underway, participants need to collectively define the actions and procedures needed to sustain a practice and to stay involved.
Collective action	The operational work that people do to enact a set of practices, whether these represent a new technology or complex healthcare intervention.
Interactional workability	Refers to the interactional work that people do with each other, with artefacts, and with other elements of a set of practices, when they seek to operationalize them in everyday settings.
Relational integration	Refers to the knowledge work that people do to build accountability and maintain confidence in a set of practices and in each other as they use them.
Skill set workability	This refers to the allocation work that underpins the division of labour that is built up around a set of practices as they are operationalized in the real world.
Contextual integration	Refers to the resource work - managing a set of practices through the allocation of different kinds of resources and the execution of protocols, policies and procedures.
Reflexive monitoring	The appraisal work that people do to assess and understand the ways that a new set of practices affect them and others around them.
Systematization	Participants in any set of practices may seek to determine how effective and useful it is for them and for others, and this involves the work of collecting information in a variety of ways.
Communal appraisal	participants work together - sometimes in formal collaboratives, sometimes in informal groups to evaluate the worth of a set of practices. They may use many different means to do this drawing on a variety of experiential and systematized information.
Individual appraisal	Participants in a new set of practices also work experientially as individuals to appraise its effects on them and the contexts in which they are set. From this work stem actions through which individuals express their personal relationships to new technologies or complex interventions.
Reconfiguration	appraisal work by individuals or groups may lead to attempts to redefine procedures or modify practices - and even to change the shape of a new technology itself.

Table 3. Three Normalization Process Theory related sub-processes, their definitions (May and Finch, 2009) and some possible examples of the respective strategies or activities.

Sub-process	Operational intention	*Examples on possible strategies or activities*
Implementation	Processes enabling the adoption of the skills required in the new practice in everyday work.	*Clarifying information about applying the new practice.* *A many-sided training intervention in the skills needed to initiate the new practice.* *Investing in the various facilities needed.*
Embedding	The processes through which the new practice becomes routinely incorporated into the everyday work of individuals and groups.	*Ensuring a good innovation-system fit. This means that the staff perceives the new practice as feasible and compatible with their everyday work. This may include careful selection of the practice to be implemented and the necessary organizational restructuring, e.g. the review of job descriptions.* *Using several measures to provide clinical support in applying the new practice in everyday work, e.g. case consultations individually or in groups and peer support in the form of programme champions.* *Sharing regular feedback about the progress of the implementation programme, e.g. email bulletins and refresher seminars.*
Integration	The processes that ensure the sustainable delivery of the new practice and scaling it up when required.	*A separate training intervention for the leaders in managerial practices that may best contribute to maintaining the delivery of the new practice, e.g. transformational leadership.* *A permanent and systematic policy for onboarding the newcomers in the routine practices they (both grassroots staff and leaders) are expected to adopt. This includes e.g. availability of the training interventions and other support measures.* *A careful documentation of the routine practices in the organization. These documents will facilitate the onboarding of newcomers.* *Larger organizational restructuring if needed, e.g. establishing a new unit.*

2.3.1 Application of the theoretical instruments in the studies comprising the present dissertation

The CFIR provided the definitions for some concepts in the surveys conducted in Studies I and II. In all four sub-studies, the CFIR was applied in the interpretation of the findings and in discussing them.

The NPT-related three sub-processes *implementation, embedding* and *integration* were applied as a framework for analysing the ODP implementation plan in Study II. The findings in Study III were interpreted and discussed in relation to these three sub-processes. The NPT related core constructs *coherence, cognitive participation, collective*

action and *reflexive monitoring* provided the analytical framework for the data of Study IV.

AIFs were not applied in any study related to the present thesis. These were not detected until the submission process of Study IV. The rationale for introducing the AIFs here is that they were found comprehensive and easy to understand and thus provided possible frame to adhere to when creating future programmes.

2.4 Implementation programme

An implementation programme is an intentional and planned enterprise to make changes in the existing way of working (Fixsen & Blase, 2020). Admittedly planned or not, the ways of working transform constantly in any case. Greenhalg et al. (2004) outline this phenomenon of continuous change of work with a continuum with 'Let it happen' and 'Make it happen' at opposite ends. 'Help it happen' lies there in-between. 'Let it happen' represents a change that happens naturally or unplanned as a reaction to individual professionals' growth in experience, ideas sprouting at grassroots level, changing the surrounding world etc. 'Make it happen' represents a top-down style planned or programmed change that the organization manages. Roughly defined, motivation for change arises at different levels at these two extremities, namely at the bottom and top levels respectively. The best chance for success is in the middle, where these two differently originating motivations meet at the point 'Help it happen'. This is a place where shared understanding and buy-in emerge through negotiation and enabling. The following sections introduce the basics of the structure of a top-down-type implementation programme and the strategies for building such a programme that reaches the point 'Help it happen'.

2.4.1 Basic structure of an implementation programme

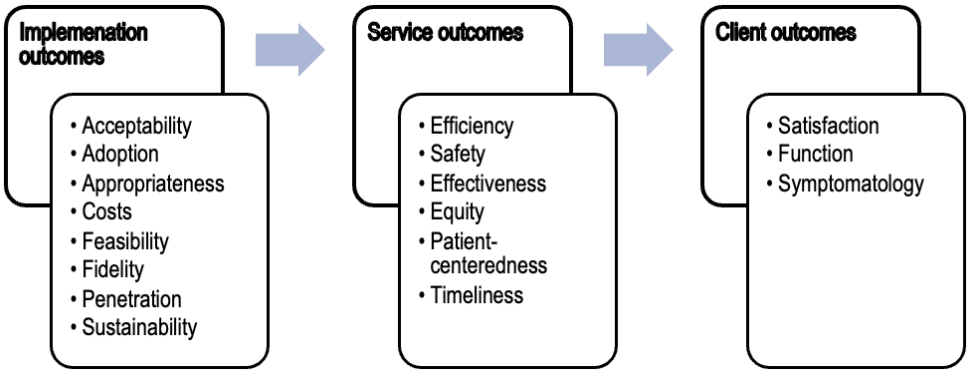
Table 4 presents a simplified structure of an implementation programme according to Kellogg's logic model (Bucher, 2010; Culclasure et al., 2019). The programme can be roughly divided into two parts: planned work and anticipated results. The planned work covers all the material and immaterial resources and activities the programme administrators deem necessary and which they have the power or other abilities to mobilize to achieve the goals set for the programme. Expected results are the gains the programme administrators anticipate achieving with the planned work. These

results can be further categorized according to the Conceptual Framework for Implementation Outcomes wherein the different types of possible results will be divided into three interdependent baskets, see Figure 2 (Proctor et al., 2011).

Table 4. Basic structure of an implementation programme, and its domains of planning and expectations according to Kellogg's logic model.

	Planned work		**Expected results**		
	Inputs →	**Activities** →	**Outputs** →	**Outcomes** →	**Impacts**
	Resources set on the programme: human, time, material and monetary	The work to be done with the resources to arrive at the goals set on the programme	The direct results of the activities	The short-term yields of the outputs	The long-term yields of achieving the outputs
Examples	*Programme staff* *Participants, trainees* *Facilities* *Instruments* *Etc.*	*Training intervention* *Facilitation, support activities* *Investing in facilities* *Restructuring of organization* *Etc.*	*Number of trained participants, treated patients, renewed equipment etc.* *New organization chart* *Etc.*	*Increased delivery of EBTs, better treatment outcomes etc.* *Better performance of the organization* *Etc.*	*Better long-term functioning of patients because of the better immediate treatment outcomes* *Etc.*

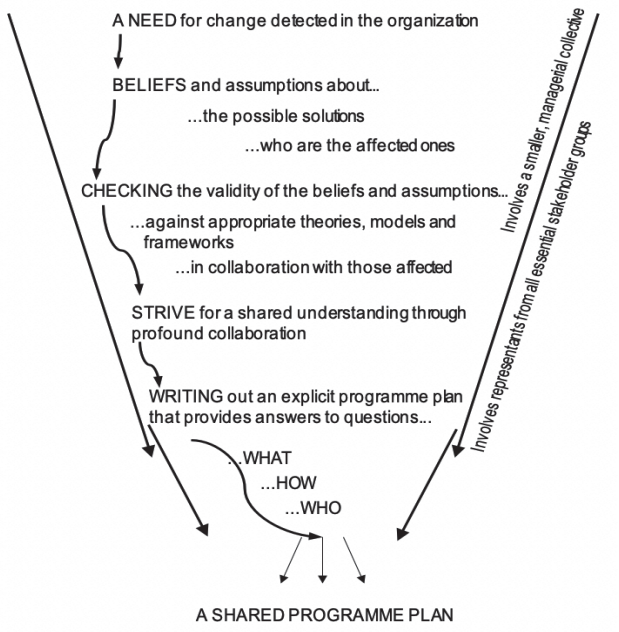
Figure 2. Categorization of the outcomes of an EBP implementation programme. The yields on the previous basket engender the yields on the next one.



2.4.2 Building an implementation programme

An evidence-based programme plan at its best is composed collectively involving all key stakeholders (Figure 3). The plan should provide considered answers to questions *what*, *how* and *who* (Ogden & Fixsen, 2014). The time span should also be outlined to answer the question *when*. *What* entails writing out at least the qualities of the intended EBP and the underlying evidence, the reasoning why this particular EBP was arrived at and what is it expected to achieve in the given context. *How* entails writing out the implementation drivers, i.e. the instruments (strategies, activities etc.) intended to be employed to make the implementation happen. *Who* entails writing out the human resources intended to execute the implementation drivers, i.e. the people or programme staff keeping the programme going. (Fixsen et al., 2005; Ogden & Fixsen, 2014). One important guiding principle for the collective work of building a programme plan is that the possible local enablers of and barriers to EBP implementation will be identified and addressed in the plan (Fischer et al., 2016; Fleuren et al., 2004). A comprehensive programme plan also makes the underlying programme theory (see next Chapter) visible and lays it open to wider collective elaboration.

Figure 3. Tube for generating a collectively accepted programme plan



A written programme plan will serve as guide for the practical execution of the programme. It is possible to generate the plan heuristically relying on individual expertise and local knowledge or to ground it on appropriate theories. Combining these two approaches is complementary and helps to avoid potential blind spots associated with both (Nilsen, 2015).

2.4.3 Programme theory

'Programme theory' is not such a general and scientific construct as the term 'theory' usually implies. Instead, it is a concept referring to programme administrators' individual and programme specific modelling and beliefs regarding *how* and *why*; by which means it is possible to achieve the intended programme outcomes (*how*) and especially describe the intra- and interpersonal underlying mediating processes (*why*) (P. J. Rogers et al., 2000; Weiss, 2000). Thus, the programme theory is not identical with the programme plan but overlaps and complements it. It is a package of personal hypotheses on causalities between the programme activities and the outcomes (Hacsi, 2000). The programme theory delves into the mediating psychosocial mechanisms between the programme plan and the intended or already realized outcomes, depending on whether the programme theory has been written out prior to the programme or evaluated afterwards (Hacsi, 2000; Weiss, 2000). The programme designers, executives and other possible administrators always and inevitably have a programme theory. Their beliefs and assumptions guide their choices and actions while designing the programme plan and in its actual execution.

A programme theory may be made explicit while designing the programme, written out as a part of the programme plan. Explication of the programme theory allows testing and analysing it collectively and against appropriate TMFs. Doing this before the actual execution phase increases the likelihood of receiving buy-in from all key stakeholders right from the outset. However, a programme theory may remain implicit, discussed and shared to varying extents among the various stakeholders and participants but existing mainly in their minds, also at varying levels of consciousness. The implicit programme theory may be evaluated and made explicit while running a programme to identify the strengths and weaknesses to find opportunities for amendments along the way (Oosthuizen & Louw, 2013). It may be also evaluated post programme to reveal potential success factors and expose potential mechanisms behind pitfalls or even adverse, undesirable outcomes (Hacsi, 2000). The programme theory evaluation would be especially important in the case

of pilot programmes intended for subsequent replication or scaling up. Such evaluation enables the programme administrators to make future programmes more productive and helps them to avoid replicating ineffective programmes (Hacsi, 2000).

As implementation programmes are programmes for change, they have linkages not only to implementation science but also to several other disciplines, e.g. social sciences, psychology and management sciences (Weiss, 2000). A comprehensive programme theory seeks to predict or explain the causalities between the various elements of the programme drawing on various appropriate theories from various disciplines. Thus, engaging experts with different relevant backgrounds to make a programme theory explicit is worth consideration.

Logic models are graphic presentations that are feasible to make the programme theories visible. Various models are available for the purpose. A recently published and advanced example is the Implementation Research Logic Model that provides ready-made templates to be used for real-world programmes, programme evaluation or research (Smith et al., 2020).

2.5 Three crucial factors affecting the success of an implementation programme

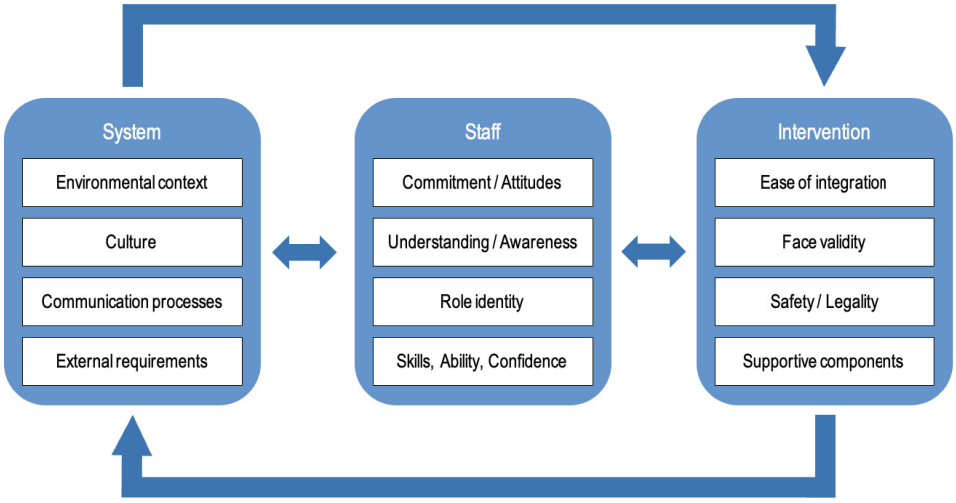
Barriers or enablers facilitating or impeding the implementation of EBPs and related clinical guidelines have been identified in vast numbers. To large extent, they are shared across healthcare professionals, specialities and the tiers of care. (Boström et al., 2013; Ellen et al., 2014; Fischer et al., 2016; Geerligs et al., 2018; Ringle et al., 2015; Slade et al., 2016). The same factor may occur in as either facilitating or impeding mode. Geerligs et al. (2018) have categorized twelve possible factor packages into three key domains – system, staff and intervention – that interact reciprocally (Figure 4). Staff-related enablers and barriers occur at both individual and group levels. Individuals build up a collective stance towards the intended EBP and its implementation programme, thus generating the organizational readiness for change (Weiner, 2009). The state of readiness at each time point lives according to the balance between the two extremities of facilitating and impeding modes.

Research on adherence to various clinical guidelines reveals a random variation (M. Bauer, 2002; Bighelli et al., 2016; Fischer et al., 2016; Gatej et al., 2020; Lee et al., 2020; Nguyen et al., 2020; Slade et al., 2016). Examples of the barriers identified are poor awareness of or disagreement with the guidelines among frontline service

providers as well as the perceived incompatibility of a guideline with the clinical reality and deficits in organizational support in implementing them. Similar factors also occur in terms of the implementation of various concrete interventions (Boström et al., 2013; Geerligs et al., 2018; Ringle et al., 2015). The barriers could frequently be addressed with adequate organizational and programme strategies. There are several justifiable entry points to approach this issue. Three repeatedly emerging factors affecting the success of implementation efforts are resources, local buy-in and leadership. The constant availability of adequate resources was one of the most critical factors for keeping the implemented EBPs in use sustainably while conversely the decrease in the resources explained the failure of their delivery in two large multi-site evaluations of the sustainability of various EBPs in community-based psychiatric services in the USA (Bond et al., 2014; Hunter et al., 2017). Even if the monetary and human resources needed are in place, the successful implementation of an EBP without a shared understanding and local buy-in will be very difficult (Engeström, 2000; Hickey et al., 2018; Lindholm et al., 2020). The style and stability of leadership have been shown to be critical to the implementation processes (Aarons et al., 2016; Aarons & Sommerfeld, 2012; Guerrero et al., 2015; Peterson et al., 2014).

Embedding a new EBP in everyday work at individual and organizational levels entails local buy-in, which, in turn, is dependent on individual and group level judgements of the intended EBP and its implementation programme. The work for collective sensemaking needs investments in joint cognitive, time and other human resources (May & Finch, 2009) in which the leadership plays a decisive facilitating role (Guerrero et al., 2015). The process of transactions described above provides one quick overview of the collaborative work in seeking the answers to the questions of *what, how* and *who* while building up an implementation programme (see Chapter 2.4.2).

Figure 4. Bi-directional associations between key domains of barriers and enablers.



2.5.1 Resources

Implementation programmes require resources. 'Resources' refers to various human-related resources, such as staffing, time allocation, cognitive efforts and social transactions, as well as to facilities, etc., all of which can be translated into the language of finance (Bond et al., 2014; Fischer et al., 2016; Geerligs et al., 2018; Hunter et al., 2017; May et al., 2016). Sufficient resources or thereof lack is one of the key factors determining the success of the implementation of an EBP and the sustainability of its delivery (Bond et al., 2014; Hunter et al., 2017).

At minimum, costs ensue from the programme staff and the time resource the intended EBP providers need to participate in the programme activities. Also, embracing and adapting a new practice to everyday work takes more time for a professional than delivering a habitual intervention. This work to domesticate the innovation as a new established practice involves individual and collective mental effort and accumulating concrete experience in applying it in everyday work (May & Finch, 2009). These exertions require investments in time outside quantifiable or otherwise immediately productive work. Other costs may also ensue, depending on the nature of the innovation, e.g. from the acquisition of different instruments or other facilities.

The need for resources to run the active programme phase is obvious. Also, various direct operative resources, e.g. single-use or other consumable materials needed after the active programme phase are likely taken into account. Instead, addressing the need for immaterial resources to keep the new practice alive sustainably after the active programme phase may face challenges. These immaterial necessities include among others a permanent and systematic policy of in-service training for newcomers in the EBPs they are expected to deliver.

2.5.2 Shared understanding and buy-in

There is strong evidence supporting the importance of a shared understanding between different stakeholders about *what* is to be implemented and *how* (Greenhalgh et al., 2004; Hickey et al., 2018; May & Finch, 2009). The state of local buy-in provides the launchpad for the execution of a programme and its eventual achievements (Engeström, 2000; Hickey et al., 2018; Lindholm et al., 2020). It is noteworthy that the implementation of anything new is a question of implementing a change. Collective acceptance of a change is a complex phenomenon with multiple factors, linkages and collective actions and is closely related to the concepts of implementation climate and organizational readiness for change (Damschroder et al., 2009; Greenhalgh et al., 2004; May & Finch, 2009). Identifying the intended providers of the intended EBP and their immediate leaders as active actors, collaborators and key stakeholders who will make their own decisions in terms of the implementation programme and the EBP rather than being passive targets of the programme will facilitate achieving collective acceptance and joint effort for effective implementation (Greenhalgh et al., 2004).

Implementation climate and readiness for change both are multi-level and multi-faceted concepts (Weiner, 2009; Williams et al., 2017). They can be observed at the levels of individual, group, unit, department or organization (Weiner, 2009). All these levels share several common features, for example motivation for change and judgements of capacity and capability to implement the intended change successfully (Michie et al., 2011; Weiner, 2009). At supra-individual levels, these are collective phenomena and the results of complex social transactions between all stakeholders (May & Finch, 2009; Weiner, 2009). In addition, readiness for change is rather a situation- or change-specific than a general state of affairs (M. E. Rogers, 2003; Weiner, 2009).

Early and frank negotiations between all key stakeholders provide the experience of being heard and included, which will enhance the implementation climate and readiness for change (Greenhalgh et al., 2004; Hickey et al., 2018; Lindholm et al., 2020). The purpose of these negotiations is to seek collectively accepted answers and specifications to several questions and concerns: what is the problem or some other cause to be addressed and why, what would be the best way to accomplish the objective, how the proposed new practice and related implementation programme may affect or change the prevailing conditions, individual positions or relationships, would there be a risk of unexpected or even adverse effects, what should be considered for the programme to succeed etc. (Greenhalgh et al., 2004; Lindholm et al., 2020; May, 2013).

The endeavour is to match the programme with local preconditions and avoid being at cross purposes. As a conclusion of a successfully completed preparation phase, most of those involved in the programme see the change as worthwhile and feasible, they know what to expect regarding its technical execution, what their roles and responsibilities are and what benefits the various stakeholders expect (May & Finch, 2009; Weiner, 2009). Such a shared understanding about the road ahead likely improves the prospects for achieving the shared understanding and acceptance of the programme from all key stakeholders (Greenhalgh et al., 2004; Hickey et al., 2018).

2.5.3 Leadership

Leadership has repeatedly been shown to be one of the most crucial factors determining the success of implementation programmes (Holmberg et al., 2008; Hunter et al., 2017; Peterson et al., 2014; Williams et al., 2020). Top management validates organizational strategies also involving different programmes. The team or immediate leaders constitute a formal and central influential stakeholder in the implementation of organizational strategies, nurturing the implementation climate or readiness for change and sustaining implementation outcomes at the team level (Aarons & Sommerfeld, 2012; Peterson et al., 2014). More specifically, the stability of leadership and the style of enacting managerial actions impact on the implementation climate or readiness for change and further on the actual implementation of the EBP among the staff (Aarons et al., 2016; Aarons & Sommerfeld, 2012; Bunger et al., 2019; Holmberg et al., 2008; Williams et al., 2020). It is entirely logical to claim that different managerial strategies are needed in efforts

to ensure commitment to a programme from stakeholders with a high or low receptivity. Success in this transaction in turn has an impact on the ultimate programme outcomes and further their long-term maintenance (Aarons & Sommerfeld, 2012; Hunter et al., 2017). The role of team leaders in particular has been shown to be critical in sponsoring an implementation programme (Birken et al., 2016; Bunger et al., 2019). They have a mediating role between top management and grassroots staff; their tasks are to disseminate information about future programmes or those already running, to tailor the information to staff's individual needs, to facilitate the programme realization by translating the programme plans into the everyday work tasks as well as through reminders and monitoring, and, finally, to mandate the staff to make those adaptations in their work necessary for implementing the EBP (Bunger et al., 2019). The commitment of all stakeholders from managers at all levels to grassroots professionals, as individuals and as groups, to make the intended change happen is of crucial importance for an effective implementation programme and sustaining its outcomes (Greenhalgh et al., 2004). The programme administrators should make ensuring the engagement of the team leaders with the programme a high priority.

Stanhope et al. (2019) studied a multi-site implementation programme of person-centred care planning (PCCP), which is an EBP with recovery orientation (Adams & Grieder, 2005). They found a relationship between staff's readiness for change end leadership behaviour. Initially, the climate generally involved resistance to change. At sites where leaders showed commitment to the PCCP and discussed in-depth its features and related assets with their teams, the resistance shifted towards shared acceptance resulting in adoption by these teams. The results of Stanhope et al. (2019) are in line with the theory of organizational readiness for change presented by Weiner (2009). Thus, implementing evidence-based managerial style and practices could make a substantial contribution to the effectiveness of EBP implementation programmes.

Managerial sponsorship of an implementation programme has a close relationship with the idea of transformational leadership. As Aarons & Sommerfeld (2012) found in their multi-site study, transformational leadership style predicted better implementation climate during an active implementation programme while leader-member exchange style resulted in better climate towards innovations during a more stable period of service as usual. Naturally, to be fruitful, both styles should be enacted skilfully. In another multi-site study passive-avoidant leadership style predicted vanishing of the programme outcomes (Aarons et al., 2016).

Transformational leadership is an empirically based form of leadership (Gabel, 2013) and is connected to more productive teams, greater job satisfaction and improved patient safety in health care (Boamah et al., 2018). Transformational leadership, sometimes also called charismatic leadership, involves social transactional strategies for raising individual motivation and engaging staff in collective efforts to make the desired change happen (Aarons & Sommerfeld, 2012; Gabel, 2013). However, there is an underlying risk factor worth noting, namely paths from charismatic position taking to abusive behaviour. In his review article, Pundt (2014) describes four different conditions that include the risk of a leader sliding from decent behaviour to destructive behaviour. All these conditions (exaggeratedly charismatic behaviour, exceedingly high goal setting, failed charismatic attempts, failure to achieve the goal) are potentially faced in relation to any organizational change, including implementation programmes. The shift towards abusive leadership occurs in social transactions between leader and staff. This emphasizes the need for leaders to be vigilant to what is happening in their social surroundings and to monitor their own behaviour and its underlying motives.

The leader-member exchange form of leadership (LMX) has been linked to transformational leadership or even seen as an embedded determinant of this (Wang et al., 2005). As such, it has been proposed to have a mediating role of the effects of transformational leadership. The main tenet of LMX is to find the most appropriate roles and responsibilities for each employee and thus strengthen motivation and job performance (Wang et al., 2005). Consequently, the ambitions connected to LMX and transformational leadership are shared. However, LMX has a narrower focus on the leader's dyadic and reciprocal relationship with each individual subordinate (Wang et al., 2005). This makes the distinction between these two approaches. LMX differentiates between employees according to their competence, performance and other individual factors. Here are located the positive possibilities of LMX but also the hidden risks (Han et al., 2021). It is possible to achieve a positive effect on job satisfaction and performance at group level if the staff perceive that the differentiation between them made by their leader is fair. Conversely, if the staff judge the division to be unfair, the effect becomes negative. Hence, to avoid causing experiences of biased differentiation while exchanging individually with one of the team members, the leader should pay attention to group-level ethical considerations (Han et al., 2021; Hassan et al., 2013). This means, among others, that the distribution of potential assignments, benefits etc. should be normative and predictable.

2.6 Sustainability of programme outcomes

The sustained use of the intended EBP is usually an inherent goal of its implementation programme. The term 'sustained use' or 'sustainability' is used to refer to the continuation of the EBP in the intended organization after closing the active programme phase and all related support activities (Stirman et al., 2012). Several other terms have also been used, e.g. durability, maintenance, institutionalization, normalization or routinization, although each of them captures somewhat different aspects of the issue (Birken et al., 2020; Stirman et al., 2012).

Research has exposed substantial challenges regarding the sustainability of the outcomes of EBP implementation programmes (Hall et al., 2016; Stirman et al., 2012). Even excellent adoption rates with high fidelity detected immediately after the end of active programme phase tend to decline substantially during the next few years at both the individual professional and organizational levels (Aarons et al., 2016; Beidas & Kendall, 2010; Edmunds et al., 2014; Scheirer, 2005). Brief training initiatives in complex interventions enable the trainees to start with the use of the new intervention in their everyday work (Beidas et al., 2012). Maintenance of their competence in the intervention and supporting their activity in applying it with different patients necessitate the mobilization of various reinforcement and sustainment strategies (Beidas et al., 2012; Stirman et al., 2012). These strategies include ongoing complementary training and clinical supervision, audit and feedback, triggers or reminders embedded into the everyday work and checklists. Reinforcement and sustainment strategies should be incorporated in the routine organizational practices to achieve the desired long-term effect. Drawing on their large multi-site sustainability study six years after full implementation of five different psychosocial EBPs, Bond et al. (2014) list seven sustainability factor domains they found to be influential in the sustainability of the outcomes: economic resources, leadership enactment, prioritization, reinforcement strategies, workflow, workforce and client compatibility. They summed up sufficient resources, ongoing supervision as well as the monitoring of fidelity and outcomes as the most important factors enabling the long-term sustainability of EBPs, or inhibiting it if lacking.

The innovation-system fit also has a substantial impact on the sustainability of an EBP (Stirman et al., 2012). 'Innovation-system fit' shows how well the EBP matches the tasks assigned to the organization and how far it is possible to customize the EBP according to the organization's individual needs without undermining its core elements and effectiveness.

Staff turnover is one of the most detrimental factors undermining the sustainability of EBP implementation outcomes at organizational level (Beidas et al., 2016; Hunter et al., 2017; Lindholm et al., 2019; Warner et al., 2020). To combat this challenge, the only realistic option is the in-service training of newcomers in the EBPs they are expected to provide. Recruiting new staff already conversant with the intended EBPs is also possible but is not a realistic strategy to be generally being relied on. The principle of focused in-service training should be applied to both grassroots and managerial staff. An organization should build up a permanent policy and capacity to satisfy the demand for in-service training of incoming staff focused on clinical practices intended to be included in the routine delivery of the organisation.

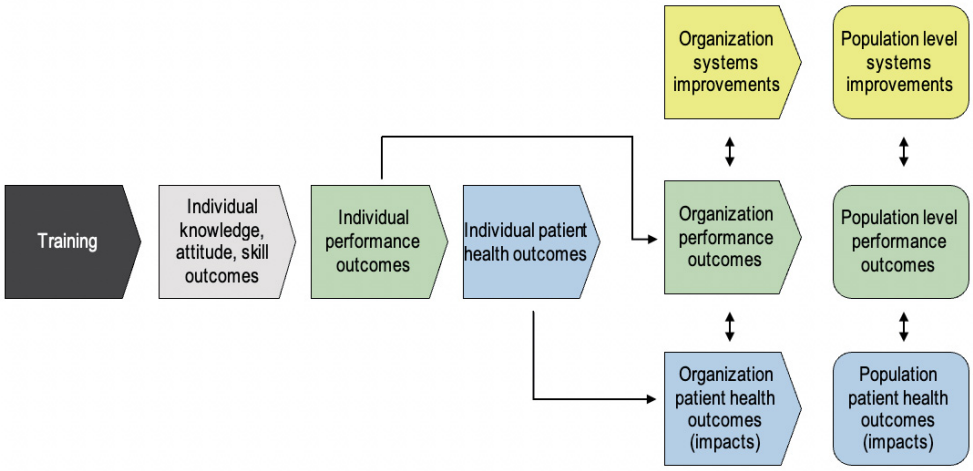
As shown above, sustaining the EBP implementation outcomes is a highly complex issue with a vast number of aspects and factors with both individual and organizational levels bound tightly together. Future research will hopefully yield more specific knowledge about the effectiveness of various strategies and factors and related contextual aspects (Birken et al., 2020).

2.7 In-service training in a complex intervention and clinical support in applying it

2.7.1 In-service training

A successful implementation of complex interventions entails in-service training of the staff. The professional education of health care professionals provides them with basic knowledge and skills enabling them to enter working life. After that, situational and changing demands for each individual professional and organization determine contemporary needs for in-service training, such as staying up to date, changes in the clientele or other environmental changes. The natural motivation behind the in-service training is to enhance the performance of the individual professionals, thereby achieving better performance of the organization and, ultimately, better treatment outcomes for patients (Figure 5) (O'Malley et al., 2013; Proctor et al., 2011).

Figure 5. Training evaluation framework skeleton. Grey – Knowledge, attitude, skill outcomes. Green – Performance outcomes. Yellow – Systems improvements. Blue – Patient health outcomes.



2.7.2 Components of an evidence-based in-service training programme

According to solid evidence, multifaceted training programmes most likely result in the best possible training outcomes in the change of professionals' behaviour (Beidas & Kendall, 2010; Bluestone et al., 2013; Herschell et al., 2010). In the present context, 'multifaceted training' subsumes the application of different training methods with interactive techniques in the main role. Interactive techniques, such as case studies and simulations, are recommended as they are superior in activating the trainees' mental processing. Passive techniques, such as solely didactic lectures and reading matter, have quite weak potential to bring about changes in behaviour, although they do indeed have a role in providing information, reinforcing the theoretical basis and acting as reminders.

Repetitive training activities yield better and more sustainable outcomes in the trainees' competency than single-event training encounters (Bluestone et al., 2013; Jani et al., 2019; Liness et al., 2019). The baseline of the trainees and the nature of the intended health intervention, treatment or practice determine the thoroughness of the initial training needed to get started. For instance, among nursing staff or therapists in public mental health services, brief training workshops of about one to four days, provide a feasible starting point for taking the first steps with various

EBPs pertinent to the family of cognitive behavioural therapy (Beidas & Kendall, 2010; Lindholm et al., 2019; Rosen et al., 2016). The therapists' skills and the effective delivery of the intended psychosocial intervention should be reinforced and maintained by post-workshop skills-based case consultations that should form an integral part of the training programme (Beidas et al., 2012; Beidas & Kendall, 2010; Edmunds et al., 2014; Rosen et al., 2016) Web-based applications have moreover expanded the evidence-based opportunities to provide in-service training effectively via remote connections (al Achkar et al., 2020; Koerner et al., 2021; Puspitasari et al., 2017)

2.7.3 Clinical support

Ensuring sufficient clinical support or practice facilitation in applying the new EBP in everyday work is one of the prerequisites for the successful implementation of them (Baskerville et al., 2012; Beidas & Kendall, 2010; Cook, Dinnen, et al., 2015; Hunter et al., 2017). Means for providing the clinical support include skills-based case consultations (Beidas et al., 2012) and internal or external practice facilitation (Cranley et al., 2017)

The trainees' activity in making use of case consultations after brief training workshops for psychosocial EBPs has been shown to correlate positively with their activity and persistence in applying the EBPs in the everyday work (Edmunds et al., 2014; Rosen et al., 2016). Factors affecting the trainees' activity on adhering to the case consultations include the attitudes and actions of the team leaders as well as the accessibility of the consultations (Lindholm et al./Study III, submitted;).

Case consultations arranged individually or in groups have both been shown to be efficacious, but group arrangements were more cost-effective (Stirman et al., 2017). Various remote access options (telephone and web-based applications) for case consultations have also been increasingly and successfully used (al Achkar et al., 2020; Koerner et al., 2021; Rosen et al., 2016). Web-based technology also improves the accessibility of consultations (al Achkar et al., 2020).

The term 'facilitator' refers to a variety of individuals with different positions or roles in relation to an implementation programme and the intended organization (Cranley et al., 2017). A common feature of these different facilitators is that they are dedicated to contributing in various ways to the success of the EBP implementation. A facilitator's position may be formal, such as that of a team leader or external change agent, or informal, such as a peer-nominated influencer or

programme champion. There may be several different facilitators associated with a programme. What is essential is to ensure that the facilitation includes adequate ways to provide clinical support that is easily available in the flow of everyday work. For example, Hunter et al. (2017) found a positive association between the activity and sustained usage of an EBP at team level and the number of staff members competent in the EBP, including the team leader. It can be expected that the more competent peers are available the easier it is to obtain support with tricky cases. Cranley et al. (2017) emphasizes the idea of using the facilitation and facilitators in a strategic manner, in which different modes of facilitation and roles of facilitators are described in the implementation plan. Emphasizing the role of internal peer facilitators is recommended as they empower the participating staff's commitment to the programme and also potentially remain while external facilitators usually retreat towards the end of the interim programme (Mount & Anderson, 2015).

2.8 Summary of the literature review

An implementation programme for an EBP strives for its sustainable use and delivery. Achieving this entails deploying evidence-based strategies for building up such a programme that would achieve the buy-in of all key stakeholders and be realistic regarding arriving at the desired outcomes. A collaborative approach involving the stakeholders right from the outset has been shown to be the best practice for this purpose. The team leaders or other low and middle level clinical supervisors are the central influential stakeholders enabling two-way communication between higher level managers and grassroots staff. Their attitudes and actions are also crucial in successfully accomplishing implementation programmes. The allocation of sufficient resources not only during an active programme phase but also for running the new practice after the end of the programme is a prerequisite for sustaining the desired programme outcomes. Cultivating initial ideas for an EBP implementation programme into a realistic plan and taking the steps in its actual execution is highly recommended to be based on appropriate TMFs in addition to local knowledge and expertise.

3 PSYCHIATRIC SERVICES IN FINLAND

Health care services in Finland, including psychiatric services, are organized in two tiers, namely primary and secondary care (Sadeniemi et al., 2018). The services are publicly funded and the user fees regulated by the government. Psychiatric secondary outpatient services are free of charge for users. There is also a partly publicly subsidized private sector that provides various complementary health care services. Municipalities are free to decide whether to arrange the services themselves or together with other municipalities (Korkeila, 2021). Purchasing some parts of the services from the private sector or non-governmental organizations is also possible.

The primary care services are organized into municipal health care centres that involve several various professions (Ministry of Social Affairs and Health in Finland, n.d.). The centres are led by general practitioners. There is wide variation in how the primary psychiatric outpatient services are resourced in the primary care health centres (Korkeila, 2021). The continuum goes from a few assigned nurses at one end to a team of qualified nurses and psychologists supported by a consultant psychiatrist at the other end. This disparity reflects the differences between the rural and urban or smaller and bigger municipalities, but not systematically. The secondary psychiatric outpatient services are usually arranged as specialist-led teams involving psychiatrists, psychiatric nurses, psychologists and social workers (Korkeila, 2021). Patients are referred from primary care to secondary care if needed. Inpatient psychiatric services are mostly provided by hospital districts covering several municipalities. Some larger municipalities have their own psychiatric hospitals (Korkeila, 2021).

3.1 Management systems in psychiatric secondary care

The Mental Health Act of 1990 defines outpatient services as primary in Finland (*Mental Health Act 14.12.1990/1116*, 1990). This determines the way of organizing and managing these services. The act leaves room for a great deal of variation in the ways of organizing services. For instance, the individual organizations, or even teams, are free to decide the staffing structure, what treatment options or techniques

(drugs, psychosocial, neuromodulation, individual, groups) they will apply and the intensity and durations of treatment periods. The extent to which the decisions regarding the treatment options have been further delegated to individual professionals varies across organizations and teams. Such clinical freedom may support the sense of autonomy, which in turn may strengthen the motivation and readiness to take responsibility (Gillet et al., 2019; Kjellström et al., 2017). This clinical freedom also enables a wider spectrum of ways to encounter different patients with different needs more individually. The other side of the coin is that the clinical freedom permits the organizations to make relatively different investments in human resources in terms of the size and structure of the staff and their in-service training. Clinical freedom moreover allows the organizations, teams and professionals to apply treatment practices according to their individual interests or beliefs in spite of the underlying evidence (Fineout-Overholt et al., 2005). There is a strong, downright paradigmatic consensus about the tardy transition of new EBPs into the routine practice in everyday work and their underutilization across health care (Fineout-Overholt et al., 2005; Morris et al., 2011; Westerlund et al., 2019). The emphasis in management practices has traditionally been on human resources, which may in part explain this imbalance between clinical freedom and the random application of EBPs (Walshe & Rundall, 2001).

3.2 Education of psychiatric staff in Finland

The education of health care staff in Finland is publicly funded. Psychiatrists and psychologists are educated in universities and nurses in universities of applied sciences. Graduating nurses currently become generalists. Their studies in mental health and substance abuse vary widely in terms of content and extent between different institutions (Kivelä & Kilkku, 2017). There are also complementary specializing programmes available intended for qualified nurses, but the costs of these programmes fall on the participants. There are no comprehensive statistics available on the share of nurses within mental health services who have completed a specializing programme. However, the general impression is that these programmes are not so popular.

On the professional education programmes, training in giving psychotherapy interventions plays only a fairly minor role and is superficial. More profound training in this branch has been seen to be the specific task of continuing education, for which employers are responsible. The employers support their staff's in-service

training by allocating monetary and time resources. However, actual practices regarding the in-service training vary widely between organizations and teams. The employees are largely free to choose from a variety of different psychotherapy techniques and approaches according to their individual orientation or interest. The clinical decision regarding which specific treatment techniques to apply has also generally been left to the individual professional's own discretion. Arranging counselling type of clinical supervision to support the staff's emotional coping and reinforcing their competence is statutory to the employers *(Mental Health Act 1990/1116)*. However, the ways of organizing and the contents of this supervision are not prescribed.

Becoming a registered psychotherapist in Finland has a statutory base *(Government Decree on Health Care Professionals 564/1994 and its amendments 1120/2010 and 533/2018)*. It entails completing a formally defined training programme of three to four years monitored by the universities. However, the producer may also be some other training organization or association. Embarking on the programme requires a previous appropriate professional qualification – that of a registered nurse, psychologist, social worker or physician – with a specified minimum amount education in psychology or psychiatry and work experience of at least two years within the field of mental health. In terms of costs psychotherapy training makes an exception from otherwise publicly funded academic education as the trainees themselves are responsible for these. The costs vary from about twenty to fifty thousand euros depending on the producer and framework of the training (such as solution focused, cognitive behavioural or psychoanalytic psychotherapies). There is wide variation between public employees regarding how they subsidize these very high costs for their employees to acquire the competence of a registered psychotherapist.

4 SUMMARY OF BRIEF PSYCHOTHERAPY INTERVENTIONS MOTIVATIONAL INTERVIEWING AND BEHAVIOURAL ACTIVATION.

The evidence supports the delivery of brief psychotherapies in the treatment of mood disorders in both primary and secondary care settings (Cape et al., 2010; Cuijpers et al., 2009; Knekt et al., 2011; Luoto et al., 2018). Their utilization is also widely recommended in several national clinical practice guidelines for the treatment of mild to moderate disorders (National Institute for Health and Care Excellence, 2009, 2011; Stein et al., 2010; Work group of the Finnish Medical Society Duodecim and the Finnish Society of Addiction Medicine, 2018).

Motivational interviewing (MI) and behavioural activation (BA) both are widespread examples on evidence-based brief psychotherapy interventions with wide scopes and several applications.

4.1 Motivational interviewing

MI is basically a client-centred psychotherapeutic approach targeted to evoke and bolster the client's or patient's motivation and thereby activity towards making the desired change in the health behaviour of interest (Miller & Rollnick, 2004). Its theoretical basis relies on the Transtheoretical Model of Change (TTM), commonly known as the "Stages of Change" model (Janevik & Connell, 2018). A key feature of MI is training a professional to be sensitive to recognizing the client's current stage of change regarding the health behaviour of interest and deliberately accommodating the therapeutic strategy according to that stage (Miller & Rollnick, 2004). MI and its applications have been applied largely to intervene alcohol abuse related health behaviour but also to several other health issues, e.g. gambling, illicit drug use, tobacco smoking, eating disorders, diabetes, obesity and HIV control (Luty & Iwanowicz, 2018). The efficacy and effectiveness of MI in intervening a variety of health issues have proven mainly positive with effect sizes of small to moderate in comparison to no-treatment or waiting list, and of near to zero to small in

comparison to other active treatments (Diclemente et al., 2017; Lundahl & Burke, 2009b; Luty & Iwanowicz, 2018). However, the MI has been time-saving; on average requiring two 50-minute appointments less to achieve results comparable to those of other interventions, e.g. CBT (Lundahl & Burke, 2009b). Delivering the MI in the primary care setting also maintains the level of effectiveness described above (Vanbuskirk & Wetherell, 2014). Originally, the MI and its applications were used as independent interventions but in recent decades there has emerged a growing tendency to boost CBT with MI (Iarussi, 2020; Marker & Norton, 2018; Sijercic et al., 2016). Their theoretical and practical compatibility underpins this aspiration (Miller & Rollnick, 2004; Sijercic et al., 2016). The combination MI-CBT mostly outperforms standalone CBT (Barrett et al., 2018; Constantino et al., 2018; Marker & Norton, 2018; Petry et al., 2016; Spoelstra et al., 2015; Westra et al., 2016). Besides conventional face-to-face delivery, there are recent encouraging preliminary results on an MI online application delivered as an adjunct to internet mediated CBT (Beck et al., 2020).

4.2 Behavioural activation

BA belongs to the family of cognitive therapies (CT) (Kanter et al., 2010). The underlying theories are behavioural theories of depression and anxiety (Carvalho & Hopko, 2011). These posit that avoidance and escape behaviour gives a person experience that predispose to depression and anxiety while providing no experiences conducive to a healthy mood. BA was developed to change this unhealthy behaviour (Kanter et al., 2010). It is a package of techniques for assessing the patient (activity monitoring, values assessment) and mobilizing behaviour that exposes the patient to experiences that help to regenerate the mood (Kanter et al., 2010).

BA is by nature a brief psychotherapy intervention and the evidence supporting its effect and effectiveness in treating depression is strong (Cuijpers et al., 2007; Ekers et al., 2014; Richards et al., 2017). There is also evidence that BA is cost-effective in comparison to the longer lasting CBT (Richards et al., 2017). BA has been shown to yield results comparable with those of other psychotherapies (Braun et al., 2013). BA is typically delivered by face-to-face sessions of about one hour's duration from a few up to a maximum of 20 weekly sessions but there is indeed some flexibility within these limits. Web-based BA applications have been developed in recent years and these, too, have been shown to be effective (Jones et al., 2020). Web-based applications have the advantage of being independent of time and

location. The strongest evidence supports BA in the treatment of adults' depression (Ekers et al., 2014; Richards et al., 2017), including targeting bipolar depression as an adjunct treatment (Weinstock et al., 2016). It is also a beneficial intervention in the treatment of anxiety (Boswell et al., 2017) and post-traumatic disorders (Jones et al., 2020; Wagner et al., 2019). Encouraging findings have been reported on modifications for children and adolescents (Martin & Oliver, 2019) as well as for elderly people suffering from complicated grief or age-related macular degeneration and co-morbid mood disorder (Roberts et al., 2019; Senra et al., 2019). BA is extensively applicable in various tiers of health care from primary to secondary care (Ekers et al., 2013; Richards et al., 2017). Conventionally, BA is delivered in outpatient settings but there are also some encouraging preliminary results on its applicability in inpatient settings (Folke et al., 2015).

4.3 Training in MI and BA

Brief training programmes have shown their ability in training health professionals not well-versed in psychotherapy to deliver MI and BA successfully through various contexts in health care (A. M. Bauer et al., 2020; Ekers et al., 2013; Madson et al., 2019; Puspitasari et al., 2017; Söderlund et al., 2011). Training programmes taken in MI and BA have varied from hours to days in length, in terms of training techniques deployed and the conditions of delivery. The evidence shows that the longer training has been, the better the resulting competence. In general, the most effective in-service training programmes in the psychosocial EBPs have incorporated different training techniques comprehensively, such as didactic presentations, demonstrations, role-play, manuals and self-study material as well as post-training reinforcing strategies (Frank et al., 2020; Herschell et al., 2010). Post-workshop skills-based coaching or case consultations have proven vital for reinforcing the skills acquired in the longer term and in preventing skills erosion (Beidas et al., 2012; Edmunds et al., 2014; Frank et al., 2020; Schwalbe et al., 2014). Coaching or consultations provided in individual or group conditions have proven equally efficacious, the group mode being more cost-effective (Stirman et al., 2017). The training conditions of face-to-face workshops, online or combined have all been shown to be acceptable (A. M. Bauer et al., 2020; Ekers et al., 2013; Frank et al., 2020; Puspitasari et al., 2017). Olmstead et al. (2011) evaluated the cost-effectiveness of three different strategies for providing training in MI. They found expert-led training to be the most expensive but also the most effective. Self-study strategy was the cheapest but the

least effective. Train-the-trainer strategy was somewhere in-between. There is some plausible evidence that simpler skills can be inculcated in less intensive conditions while more complex skills need more intensive training to reach satisfactory competence (Frank et al., 2020). Evidence related to MI and BA indicates the need for training lasting days rather than hours (Ekers et al., 2013; Hall et al., 2016).

5 MENTAL HEALTH CARE STRATEGIES AND QUALITY IMPROVEMENT PROGRAMMES IN FINLAND

The present doctoral research has its place within the wider national context as it was conceived in relation to national programmes of "Mieli plan 2009" and "Kaste" as well as to multi-regional programme of "Välittäjä 2009". These were development programmes and strategies for mental health care and substance abuse services. The current National Mental Health Strategy 2020-2030 continues in the direction indicated by its precursors. The claims of this dissertation make a timely contribution to the national quest for enhanced mental health care, as the implementation of various complex interventions, practices and programmes continues to lie at the heart of the national guidelines.

5.1 Plan for mental health and substance abuse work (Mieli plan 2009)

"Mieli plan 2009" was the national proposal for improving mental health and substance abuse services by 2015 (Steering group of the implementation of the national plan for mental health and substance abuse work for 2009-2015, 2016). It was in the form of a compilation of recommendations, not regulations. The emphasis was on developing patient-centred services for the promotion of mental health as well as reducing the harm caused by mental problems and substance abuse. This was suggested to be achieved by setting the focus on basic and outpatient services and reorganizing the services on the basis of integrated care of mental health and substance abuse. Also, the services were to be organized with easy access for all age groups. The proposals for implementing the strategy were divided into five domains: 1) education, 2) guidelines for best practices, 3) co-ordination, 4) reinforcement of resources and 5) updating the legislation.

5.2 The "Välittäjä 2009" programme

"Välittäjä 2009"* was a multiregional programme in 2009-2013 that was connected to the National Development Plan for Social Welfare and Healthcare 2008-2011 and 2012-2015 (Kaste Programme) (Work Group of Välittäjä Programme, 2014). The goals of "Välittäjä 2009" were set as

- developing basic services for substance abuse and mental health through disseminating and integrating the best practices into the organizations' routine practices (this was the main goal)
- increasing the service users' co-partnership in the services and their development
- developing and embedding practices for the prevention of substance abuse and mental health problems
- enhancing professional skills in the treatment of substance abuse and mental health problems
- making the chain of care from basic services to specialized services seamless and
- preparing of regional plans for substance abuse and mental health services.

The programme met the goals by means of several concrete outputs. During the programme, personnel from different health care organizations and the service users encountered each other several times in various groups at "the round table for thinking together". This itself was a new way of working on the developments. Different regions carried out different local sub-programmes. These included, for instance, the creation of a systematic model for the identification and treatment of depressive patients within primary care, the development of various models for the integrated treatment of dual-diagnosed patients (i.e. patients with comorbid mental health and substance abuse disorders), the development of professional education in mental health in institutions teaching health care and social work. Also, in the region of South Ostrobothnia (the geographical context of the present thesis), "Välittäjä 2009" yielded various outputs. Programmes were set up for training experts by experience (Toikko, 2016) in the region and to provide ongoing in-service training targeted at local professionals. These training programmes were integrated into the routine training schedule administrated by South Ostrobothnia Hospital District and were repeated yearly, also after the end of "Välittäjä 2009".

*The Finnish word "välittäjä" has a dual meaning: a mediator and one who cares.

5.3 National Mental Health Strategy 2020-2030

The Government of Finland published the latest national mental health policy strategy for the years 2020-2030 at the beginning of 2020 (Vorma et al., 2020). The strategy prioritizes the five following topics:

1. Mental health as a resource
2. Construction of children's and young people's mental health in everyday life
3. Mental health rights
4. Broad-based services that meet people's needs
5. Good mental health management

In addition, the strategy contains a separate programme for suicide prevention. The strategy serves as a guideline for present and future governments to focus their mental health policies. It also contains proposals for implementation and monitoring. The strategy is intended to inform the national reform of health and social services, which is currently in the preparatory phase (*Health and Social Services Reform*, 2020). According to the strategy, the government has launched a financing programme from which regions are able to apply for monetary support for structural reforms aimed at

- increasing access to different psychosocial interventions, e.g. psychotherapies targeted at all age groups for preventing and treating mental health problems
- rebuilding of organizational structures to steer primary health care and secondary care to better collaboration in identifying and responding to the needs of service users
- strengthening of rehabilitation services in occupational health care
- increasing the competence of personnel in various municipal services to meet service users with mental health problems, and
- preventing suicide.

6 THE OSTROBOTHNIA DEPRESSION PROGRAMME

The South Ostrobothnia Hospital District launched the Ostrobothnia Depression Programme (ODP; in Finnish Masennustalkoot II –depression tutkimus- ja kehittämishanke) as one of regional subprogrammes of "Välittäjä 2009". The hospital district provides public specialized health care services to a population of 200,000. The ODP ran in the Department of Adult Psychiatry during the period 2009-2013. At the time of the ODP, the department comprised twelve small outpatient agencies across the region and five inpatient wards in Seinäjoki Central Hospital. The region also involved two separate outpatient agencies, each of which were under the municipal administration. Six units participated in the ODP; five of these were outpatient agencies of which four were under the administration of the hospital district, and one acute inpatient ward.

The ODP was set up to address several challenges identified by the management of the department. The challenges related to a substantial increase in depressive patients with various comorbidities, most commonly anxiety disorders, and patients with dual diagnosis (psychiatric patients with comorbid substance abuse; locally alcohol was the main intoxicant) referred to secondary care. The treatment practices applied were heterogeneous, and there was a deficit in the provision of integrative treatment for dual diagnosed patients. In addition, the treatment periods tended to be excessively prolonged. All this caused congestion of the patient flow and thus increased the burden on the staff. The ODP aimed to construct a systematic model for assessing and treating patients with depression and other non-psychotic disorders and increase the delivery of evidence-based brief psychotherapy interventions, which would facilitate the patient flow and so also relieve the burden on the staff. The aim was to end up with a model that would help to bridge the gap between the resources and increasing demand for treatment as well as being suitable for region-wide dissemination.

The ODP included instructions for standardizing the path for making the diagnostic assessment, creating the treatment plan and providing brief psychotherapy interventions when appropriate. It was permissible to include in the

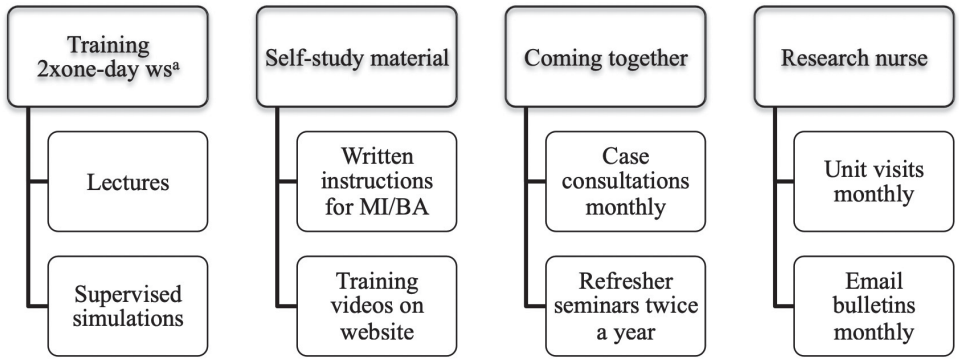
treatment plan all treatment options available, e.g. medications, that the doctors considered necessary. The goals set for the ODP were

- rapid identification of mood disorders with various comorbidities,
- rapid distinguishing of patients suitable for treatment with brief psychotherapy interventions and those in need of more extensive treatment, and
- to reduce the number of prolonged treatments by increasing the provision of evidence-based brief psychotherapy interventions.

The diagnostic phase at the beginning of the process concerned more the doctors while in the later phase the role of therapists as providers of the interventions became more prominent. This dissertation focuses on the latter phase of the path.

The ODP eventually acquired a hybrid design (Curran et al., 2012); it comprised two programmes conducted simultaneously with the same group of addressees. The primary aim was the implementation programme for two evidence-based brief psychotherapy interventions, BA for the treatment of depression and MI to augment the treatment of comorbid substance abuse. The implementation research also reported here was conducted in relation to the implementation arm of the ODP. The secondary component or arm was a clinical effectiveness study of BA and MI to which the therapists participating in the ODP were asked to recruit their patients. This part of the ODP has been reported elsewhere (Luoto et al., 2018, 2021). A project group designed and executed the ODP, see Figure 6 for the activities deployed to support the implementation. The implementation plan and the processes of building it up as well as the underlying programme theory will be presented in more detail in Results since they were explored in-depth and analysed in Studies II and IV.

Figure 6. Activities deployed for implementing behavioural activation (BA) and motivational interviewing (MI) for the four-year period of running the Ostrobothnia Depression Programme.



Training videos were six in total, three for each intervention. The videos are no longer available due to their obsolete technology.
Case consultations were arranged monthly in groups excluding the three summer months.

6.1 Composing the target group of the ODP

The units selected were invited to participate in the ODP. Participation was voluntary. Four units accepted the invitation directly at the outset of the ODP and one unit with one year's delay. The therapists employed in the ODP-enrolled units were sent an invitation email to participate in training for BA and MI, which was optional to them even though their units were enrolled in the programme. The process above has been investigated and reported more thoroughly as part of Study IV.

The units participating in ODP regularly employed 72 therapists, and they constituted the ODP target group as a collective despite agreeing the invitation to participate or not. In other words, they were the intended adopters of BA and MI. Due to staff turnover during the ODP, the target group was unstable. This resulted in altogether 84 ODP trained therapists, which happened stepwise during the period from September 2009 to April 2012. The vast majority of them were registered psychiatric nurses by profession and the others were practical psychiatric nurses and licenced psychologists.

6.2 Evolution of the name of the ODP

Since the English name of the ODP evolved along the way and thus varies across Studies, some clarification is needed. The Finnish name was "Masennustalkoot II - depression tutkimus- ja kehittämishanke (MT II -hanke)". Translated literally into English this yields "Research and Development Voluntary Effort Programme II". This was considered cumbersome and thus never used. The more convenient formulation of "The Ostrobothnia Depression Study (ODS)" was adopted and used in Study I. However, the name "ODS" matched very well with the clinical effectiveness study but over time it proved problematic in terms of the implementation part of the programme. Study IV provided a more detailed analysis of this incongruity. To make the distinction clear between the two initiatives included in the programme, the implementation part was named the "Ostrobothnia Depression Study related Implementation Programme (ODS-I)", which was used in Study II. However, this was still unwieldy, so the name of the whole endeavour was eventually transformed into the "Ostrobothnia Depression Programme (ODP)" and was used in Studies III and IV. The name "ODS" was determined to refer only to the effectiveness study and the "ODP" was determined to encompass the whole entity: the implementation programme and related research, the clinical effectiveness study and all programme support activities.

7 AIMS OF THE STUDY

The overall aim of this thesis was to evaluate the implementation part of the ODP, which was a real-world implementation programme of two evidence-based brief psychotherapy interventions. More specifically the research questions were:

1. Will the EBPs remain in use after the end of the programme and to what extent? This was assessed in terms of individual therapists and the organization (Study II).
2. What factors will facilitate or inhibit the adoption of the EBPs? The factors were categorized into four categories: staff-related (Study I, II), intervention-related (Study I, II), organization-related (Study III, IV), and programme-related (Study II, III, IV).
3. What managerial and programme executive policies and strategies enable or inhibit the implementation of EBPs in the real-world context (Study II, III, IV)?

The ultimate objective was to extract information that would benefit health managers and programme executives in striving towards more successful and sustainable implementation of EBPs.

8 MATERIALS AND METHODS

This thesis reports a case study on the ODP. Three methodologically different approaches were used for gathering the data: longitudinal and cross-sectional surveys with the ODP participating therapists; focus group interviews with the programme executives, the clinical head of the ODP administering psychiatric department and the team leaders of the participating units; and analysis of the ODP implementation plan.

Study I served as a formative midterm evaluation of the ODP, which also provided a place for testing and improving the research methods used. Study II was a summative evaluation to assess the effectiveness of the implementation programme for the BA and MI among the participating therapists four to five months after closing the ODP. Therapist- and intervention-related factors were used as explanatory variables. In addition, the ODP implementation plan was analysed in connection with Study II. Studies I and II had a longitudinal setting with altogether three survey points q1, q2 and q3 and their respective questionnaires. Study III comprised a cross-sectional survey to gather programme- and organization-related data to help to better understand the summative outcomes in Study II. The cross-sectional survey (Study III) was conducted concurrently with the last longitudinal survey at q3 (Study II). The therapists participating in the ODP served as informants in the surveys by Studies I-III and the two programme executives responsible for the provision of the case consultations were interviewed briefly by Study III.

The idea of focus group interviews (Study IV) was conceived while the data of Studies II and III were being analysed. This explains the relatively long time-gap between the data collection of Studies II+III and IV. The results of Studies II and III revealed partly the same procedural challenges that the programme executives had encountered during the practical execution of the programme. This necessitated exploring the process of administering the ODP in-depth and from a wider perspective. Consequently, the programme executives, the clinical head of the psychiatric department and the team leaders of the units participating in the ODP were invited to participate in the focus group interviews.

8.1 Ethical considerations

The surveys q1-q3 were completed with respondents' names and subsequently encoded, which made it possible to perform the longitudinal assessment individually. The cross-sectional survey gathering programme- and organization-related data were otherwise completed anonymously but encoded by unit. The therapists were informed verbally about the surveys, their encoding for preserving anonymity and that the results would be analysed and published. In addition, they were informed that responding was voluntary, and that whether they responded or not would not affect their status in any way. Responding was taken to be the consent to utilize the responses as informed.

The intended participants of the focus group interviews were invited by email in which they were provided with information about the aim and process of the interviews and that the results would be analysed and published. This information was repeated verbally at the beginning of the interviews, likewise that attending the interviews would be taken to indicate consent to the utilization of the gathered data as previously informed. All attendees were given an opportunity to review and comment on the data (arranged in the form of reports on the interviews) before it was analysed. Moreover, the programme executives and clinical head, who attended the interviews, were given an opportunity to review and comment on the manuscript before its publication.

The ODP-related implementation research was exempt from ethical review according to the Finnish research regulation (Finnish National Board of Research Integrity, TENK publications 3/2019) as all data was gathered from staff members and they were not subjected to any experimental interventions. Thus, the studies that comprise this dissertation were not subjected to ethics review. Instead, the ODP-related clinical effectiveness study was duly approved by the local ethics committee and its study protocol is presented at ClinicalTrials.gov (Identifier NCT02520271).

8.2 Study setting and sample

Studies I-II

Study I comprised two survey points, q1 and q2, and Study II added a third survey point q3 (Table 5). Survey point q1 was about one year after the initial training and q2 about a year after that. The final survey, q3, was conducted 4-5 months after the

ODP was closed. All ODP-trained therapists still employed in the ODP participating units at the time of each survey point were invited to respond. This represents the purposeful sampling strategy of 'complete target population' (Patton, 2015). Q1 and q2 were administered in connection with refresher seminars to which all ODP-trained therapists were invited. After each survey point, the research nurse forwarded the questionnaire forms with a reminder letter to those who did not attend the particular seminar. Since the response rate remained quite low, the last survey was conducted in connection with the regular weekly meeting of each individual unit. Table 6 presents the frequencies and professions of the therapists who responded to each survey. Fifty-seven (68%) of the 84 ODP trained therapists responded to one or more of three questionnaires, and they comprised the sample of Study II.

Table 5. The time span of the data collection and respective articles.

Initial training/ workshops →	q1	q2	q3 + org-prog svy	FGs
Interval	~1 y.	~1 y.	~3 yrs.	~1 y.
Date	varied*	varied*	March 2014	March 2015
Article number / data included		I / q1-q2	II / q1-q3 III / org-prog svy	IV / FGs
Article number / Date published		I / June 2015	II / March 2019 III / submitted	IV / Oct 2020

Abbreviations: q1-q3 = longitudinal surveys to the therapists for summative assessment, therapist- and intervention-related factors served as explanatory variables; org-prog svy = cross-sectional mixed-methods survey to the therapists to explain the summative outcomes with organization- and programme-related factors; FGs = focus group interviews with the programme executives, the clinical head and the team leaders to explain the summative outcomes with process factors.
*The variation was due to the therapists' stepwise enrolment in the training.

Table 6. Frequencies and distribution of the professional education of therapists' completing the surveys.[C]

Professional education	**Completed q1[a]**	**Completed q2[a]**	**Completed q3[a]**
Licensed Psychologist	3 (6.7%)	3 (10.0%)	5 (15.2%)
Registered psychiatric nurse	32[b] (71.1%)	22 (73.3%)	24 (72.7%)
Practical psychiatric nurse	10 (22.2%)	5 (16.7%)	4 (12.1%)
All	45 (100%)	30 (100%)	33 (100%)

[a]There were no differences in the distributions of education level by questionnaire (q1, q2 and q3).
[b]Includes two forms with missing information.
[c]The surveys were targeted to the therapists trained in the ODP. The participating units regularly employed 72 therapists but due to staff turnover 84 were trained in the ODP, registered psychiatric nurses as the main group. We do not know how many of them were at work at each survey point.

Study III

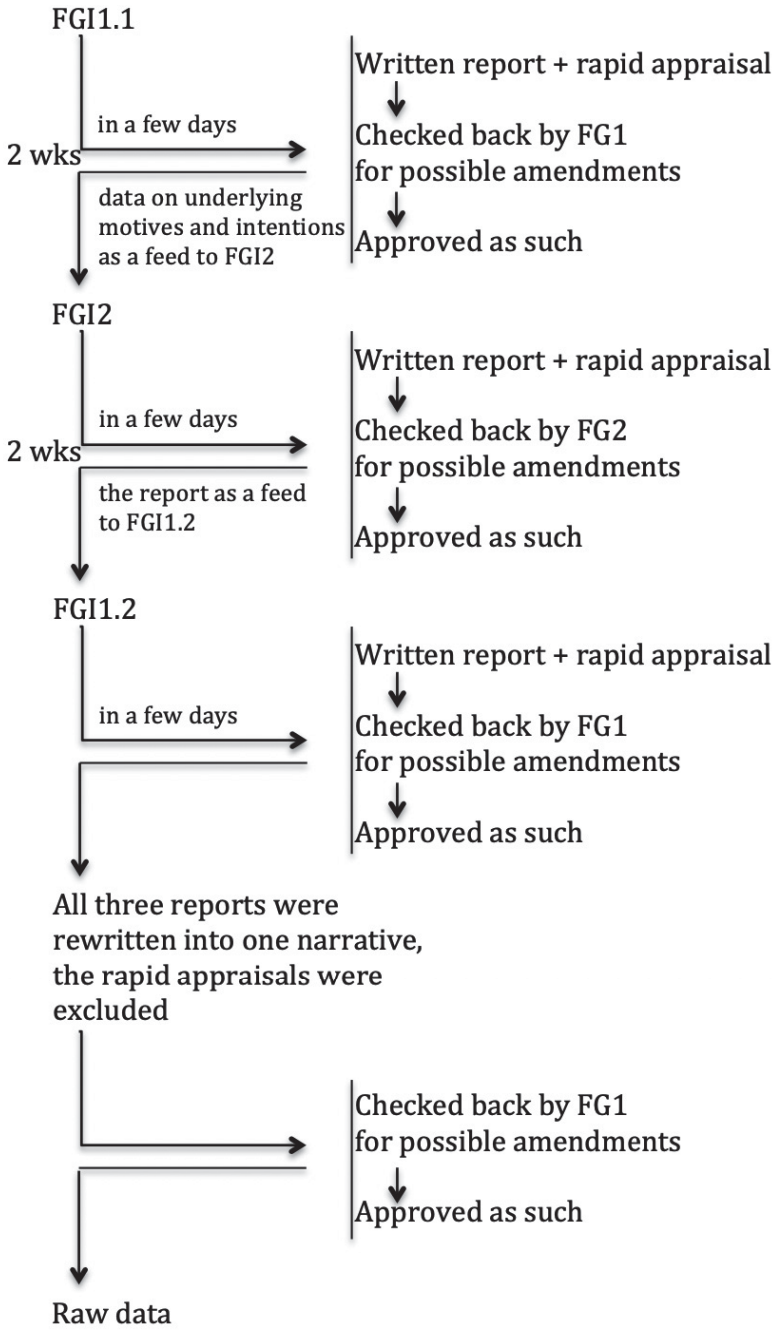
A cross-sectional survey was conducted to gather data on organization- and programme-related factors, which was intended to be used to explain the summative results of Study II. The cross-sectional survey (Study III) was conducted at the time point of q3 together with the last longitudinal survey (Study II), yet they were separate surveys. Thirty-three therapists responded in the cross-sectional survey, amounting to 46% of the original target group (72 therapists regularly employed in the participating units) and they comprised the study sample.

Study IV

The target group of Study IV was delimited to the five ODP participating units that were under the ODP administering organization. This was done since the intra-organizational interactions were considered as the core phenomena of interest. This represented a purposeful sampling strategy (Patton, 2015). The programme executives, clinical head and team leaders, comprised in total 14 individuals, of whom 13 accepted the invitation.

The interviewees were divided into two focus groups: the programme executives and clinical head formed FG1 (five individuals) and the team leaders FG2 (eight individuals). FG1 was interviewed twice and FG2 once in between. Notes were taken during the interviews, which were also videorecorded to verify the notes. The interviewer wrote reports on each interview within the next few days and each report had an impact on the following interview, see Figure 7. The process of gathering the information and forming the raw data was done according to a participatory strategy whereby the interviewees not only provide information but are also involved in the interpretation and elaborating the data together with the researcher during the process (Beebe, 2005). The raw data was in the form of a narrative on the process of running the ODP all the way from its rationales to its completion, and that process served as the case of this study, while the narrative in its turn served as the unit of analysis (Patton, 2015, pp. 259–263).

Figure 7. Setting of the iterative focus group interviews and creating the raw data. Abbreviations: FG1 = Focus Group 1; FG2 = Focus Group 2; FGI1.1 = the first interview with FG1; FGI2 = interview with FG2; FGI1.2 = second interview with FG1.



8.3 Instruments

Studies I and II

The surveys conducted at q1 and q2 were identical and reported in the mid-term evaluation (Study I). The following information was elicited: The therapists' background information comprising professional education, working years and previous training in psychotherapy. Their activity in using previously acquired psychotherapy skills and perceived need for new tools for providing psychosocial interventions as indicators of employees' overall attitudes towards applying specific psychotherapy interventions. The therapists' activity in applying the BA and MI was assessed by asking the number of patients they had treated with these interventions. The perceived usefulness of the BA and MI was examined with a separate 7-item question set created for this study (Table 7). In this question set, questions 1 and 2 evaluated the therapists' experiences with learning the interventions and their adaptability, which serve as the grounds for implementing new means of working (Damschroder et al., 2009). Question 3 was originally included based on the knowledge that a connection exists between an individual's attitude and prediction of future behaviour (Kraus, 1995). Asking this question repeatedly aimed at assessing the change in the therapists' attitudes towards the new interventions. Questions 4–7 were included based on the common factors of psychotherapy that have been found to be associated with therapy outcome (Baldwin et al., 2007; Lambert, 2005; Snyder, 1995).

Table 7. The 7-item question set to examine the perceived usefulness of the behavioural activation (BA) and motivational interviewing (MI).

	Item
1	At what level have you noticed that you have embraced the BA?
2	At what level have you noticed you have embraced the MI?
3	At what level do you predict you will use BA and/or MI after the end of the ODP* patient intake period?
4	At what level have you realized that BA and/or MI affect your ability to master the therapeutic process? (Confidence regarding the fluency and your expertise of the treatment.)
5	At what level have you noticed that BA and/or MI diversify your options to modify the therapy according to the patient's needs? (Enriched toolbox)
6	At what level have you noticed that BA and/or MI affect the patient experience you provide as an empathic therapist?
7	At what level have you noticed that BA and/or MI affect the atmosphere of hopefulness during the treatment?

*Ostrobothnia Depression Programme
Note: A 6-point Likert scale was used to score for each item having the following descriptors for response alternatives:
Questions 1, 2 and 5: Not at all, slightly, modest, quite good, good, very good.
Question 3: Not at all, seldom, sometimes, quite often, often, very often.
Questions 4, 6 and 7: Obviously impair, moderately impair, slightly impair, slightly strengthen, moderately strengthen, obviously strengthen.
In addition, a separate neutral option was used for questions 4, 6, and 7.

For Study II, the survey was elaborated for the last survey point q3 based on experiences acquired from Study I and the literature. Q3 was extended by adding the Intervention Characteristic Scale (ICS) and the Using Activity Index (UAI). Q3 was otherwise identical with q1 and q2.

Intervention Characteristic Scale

The ICS elicited the therapists' experiences on three constructs crucial in implementing innovations: relative advantage, perceived ease of use and compatibility (Chin & Gopal, 1995; Damschroder et al., 2020). The ICS was derived from the study by Chin and Gopal (Chin & Gopal, 1995). The ICS and its factor loadings are presented in Table 8. The ICS showed satisfactory reliability and factor structure. The total score for the scale had excellent internal consistency for each intervention. Thus, the ICS provided two subject-specific factors.

Table 8. Items and factor loadings of the revised Intervention Characteristics Scale[a]: Two identical series of 12 questions were addressed separately for each intervention and this generated two distinct factors.

Domain	Item[b]	Factor loadings[c]	
		MI[d]	BA[d]
Relative advantage	How useful do you find the *[the intervention*] in your work?	0.55	0.84
	How effective do you find [*the intervention*] when used in your work?	0.66	0.70
	How do you assess the influence of [*the intervention*] on the productivity and outcomes of your work?	0.79	0.82
	How do you assess the influence of [*the intervention*] on your ability to perform therapy?	0.81	0.81
Perceived ease of use	How do you find the operational use of [*the intervention*]?	0.71	0.91
	How adaptable do you find [*the intervention*] when treating different kinds of patients?	0.77	0.83
	How did you find starting to operate with [*the intervention*]?	0.59	0.83
	Was it easy to acquire the skills for performing [*the intervention*]?	0.81	0.83
Compatibility	Is using [*the intervention*] readily compatible with the work you are currently doing?	0.62	0.82
	How do you find the applicability of [*the intervention*] in treating your most usual patients?	0.85	0.85
	How does [*the intervention*] match your preferences regarding therapy?	0.87	0.78
	How does [*the intervention*] match your personal working style?	0.78	0.74

[a]Derived from Chin and Gopal (1995).

[b]Each item was revised to suit the purposes of the Ostrobothnia Depression Programme.

[c]Significant when value is ≥0.50.

[d]MI = motivational interview (factor 1); BA = behavioural activation (factor 2).

Note: A 6-point Likert scale was used to score each item, with the response options: (negative to positive poles) "Extremely poorly", "quite poorly", "moderately poorly", "moderately well", "quite well", and "extremely well". In addition, a separate neutral option ("does not have influence") was used for questions 3 and 4.

Using Activity Scale

Table 9 presents the questions of UAI and the principle for its calculation. The UAI showed skewed distributions in the use of MI and BA, which would have caused problems in the statistics. A strong correlation was detected between the UAI and ICS for both interventions, which made it possible to use the ICS as a surrogate variable instead of the UAI. The ICS showed normality in distribution and thus appeared to be more reliable for analysis as a target variable in this relatively small sample.

Table 9. Using Activity Index was calculated by multiplying the sum score of items 2 and 3 by the score of item 1. If the response to item 1 was "No", the respondent was regarded as inactive.

Item*		Response options
1.	Have you used [*the intervention*] during the last 3 months?	□ No → omit questions 2 and 3 □ Yes, with 1–2 patients □ Yes, with 3–5 patients ☐ Yes, with over 5 patients
2.	How often do you use [*the intervention*]?	□ Less often than once per month □ 1–3 times a month □ About once a week ☐ Several days a week
3.	How do you feel you adopted [*the intervention*]?	A 6-point Likert scale with response options of: "not at all, "so-so", "moderately good", "nearly good", "good", and "extremely good".

*Motivational interview and behavioural activation both had separate question sets.

Study III

The instruments were specifically designed for this study to collect the mixed-methods data. Quantitative data had a predominant role, determining the magnitude and direction of the results, while the simultaneously and subsequently collected qualitative data was intended to widen the understanding of the quantitative results. This represents QUAN + qual style complementary design (Palinkas et al., 2011).

Quantitative assessment

Six clinical dimensions were derived from the core characteristics of BA and MI (Cuijpers et al., 2007; Lundahl & Burke, 2009a) and determined as the main clinical

goals. The therapists' appraisals of these and various other factors were assessed with VAS or SGR. Also, they were asked whether they had made use of the optional possibilities of watching training videos available in the employer's website or participation in the case consultation groups. Table 10 presents which measuring scale was used for each factor.

Therapists' perceptions of the manifestation of four possible obstacles to the realization of the ODP were elicited on the VAS. Moreover, six team-related factors that in general may either enable or inhibit the progress of a programme were introduced to the therapists (Table 11), and they were asked to indicate the direction of each factor how they considered had been the case in terms of the ODP. An option left blank was regarded as neutral.

Table 10. Factor and respective quantitative measuring scale.

Factor	Measure
Therapist's perceptions of progress in each six clinical main goal (see more detailed in Table 16 in Results)	VAS
Therapist's overall appraisal of whether the ODP had a positive impact on the quality of their work (Impact-SGR)	SGR
Therapist's overall perceptions of the level of change in clinical practices that the ODP brought at team level (Change-index)	VAS
Therapist's appraisal of the ODP training intervention	SGR
Had the therapist watched the training videos available in the employer's website?	yes - no
→ if "yes"	SGR
Had the therapist participated in the case consultation groups	yes - no
→ if "yes"	SGR

Abbreviations: VAS = Visual Analogue Scale; SGR = school grade rating; ODP Ostrobothnia Depression Programme

Table 11. The question examining several team or organization related factors that programme addressees might experience either enablers or inhibitors in deriving benefit for their clinical work from an EBT implementation programme.

Some team or organization related factors may enable or inhibit progress in clinical work. We ask you to select all items mentioned in the table which have enhanced or inhibited progress in the treatment of depression during the Ostrobothnia Depression Programme.	
	Enablers
1	Support from the administrative management
2	Support from the team leader
3	Support from peers
4	Time spent practising with the team [*the programme*]
5	Opportunities to spend time practising independently [*the programme*]
6	Opportunity to acquire new skills
7	Some other reason 1, what _____
8	Some other reason 2, what _____
	Inhibitors
1	Lack of support from the administrative management
2	Lack of support from the team leader
3	Lack of support from the peers
4	Lack of time to practice with the team [*the programme*]
5	Insufficient opportunities to spend time practising independently [*the programme*]
6	Lack of opportunities to acquire new skills
7	Some other reason 1, what _____
8	Some other reason 2, what _____

Note. A blank option was regarded as a neutral experience.

Qualitative assessment

The first-page question (provided alone without any other questions on the page) elicited therapists' individual insights into the goals of the ODP and read: "Name the three most important goals that you perceive the ODP was intended to achieve." Two open-ended questions were used to obtain negative and positive feedback - 'Censure and Praise' - on the ODP: a) "Name two major issues which should have been accommodated in some other way during the ODP", and b) "Name two major issues which succeeded particularly well in executing the ODP".

The trainer-consultant and research nurse who were responsible for the case consultation groups were interviewed retrospectively using a semi-structured protocol to enrich the information on participation activity in the case consultations.

Study IV

Two separate interview guides were composed: one for the first interview with FG1 (FGI1.1) and the only interview with FG2 (FGI2) (Table 12), and the other for the second interview with FG1 (FGI1.2) (Table 13). The first interview guide was derived from the revised Socratic Approach that provided a comprehensive question kit for assessing socioethical issues related to health technologies (Hofmann et al., 2014). The guide for FGI1.2 was composed according to the principle of engaging the clinical head and programme executives in a reflexive evaluation of the information obtained so far.

Table 12. Guide for the first interviews with both focus groups.

Topic	(Reformulated*) guiding questions	*Additional guidance for the facilitator*
Motives and reasoning behind the programme	Q21 Why did the programme launchers', ultimately, want to carry out the programme? What were the fundamental motives and ambitions underlying the programme?	*Identify possible connections to interviewees' professional and the organisation's values?*
	Q30 Would there have been alternative ways to achieve the objectives set for the programme? If so, were they considered? Why were they set aside?	*Identify possible references to the organisation's Administrative Regulations, the Strategy and the Handbook of Management.*
Management of the programme	Q6 How well does the operational realisation of the programme match the organisation's values and normal managerial practices?	*Review the structure of the managerial line organization.*
	Q12 Does the way of executing the programme put the personal relationships to the test within the managerial line? Or what about the personal relationships inside the involved teams?	*Review the factual realisation of the programme (designing process, programme plan, recruiting the teams, operational management etc.). Promote the conversation about these issues.*
	Q15 Did the way of realising the programme comply with the regular managerial practices? Did the way of realising the programme somehow affect the performance of the managerial line, or, conversely, did some phenomena within the managerial line affect the realisation of the programme?	
Perspective of the participating units	Q8 What possible positive or negative consequences has the way of realising the programme yielded in the involved teams (looked from their point of view)? What measures could have amplified the positive impacts and reduced the negative ones? Would there have been alternative ways to operate?	
	Q20 How did the way of realising the programme possibly affect the autonomy of the personnel involved? Increased, decreased or altered some other way? Or what about the autonomy of the units involved?	
Interest of the evaluators	Q28 Why is the programme evaluated? What evaluation related interests do the members of the present focus group have?	
Quick vision on future developments	Vision on future developments.	*Ask the group to imagine the status of the topic after about 1-5 years. This theme is weighed more at the second interview of focus group 2.*

*The questions were derived from the revised Socratic Approach for Health Technology Assessment (Hofmann et al., 2014).Coding of the questions (Q21, Q30 etc.) refers to the codes in the original question kit.

Table 13. Interview guide for the second interview of Focus Group 1.

Part	Course of the interview	Guidance for the facilitator	*Additional guidance*
A	Reviewing of the report on FGI1.1 Reflective conversation about the report ↓	Read the report section by section and elicit conversation, finding successes and trouble spots.	*During their second interview FG1 is gradually directed to review both previous interview reports (FGI1.1 and FGI2) in an integrative way and infer possible future implications. The idea is to involve FG1 in the analysis of ODP processes instead of being only a source of data collection.*
B	Introducing the report on FGI2 Reflective conversation about the report ↓	Read the report section by section and elicit conversation, finding successes and problems.	
C	Scrutinizing reports on FGI1.1 and FGI2 together ↓ What future implications can be inferred?	What do these two reports tell us about the realization of the ODP? Invite the group to elaborate on measures for making the future developments better.	

Abbreviations: FG1 = Focus Group 1; FGI1.1 = the first interview with FG1; FGI2 = interview with Focus Group 2; ODP = Ostrobothnia Depression Programme.

Revised Socratic Approach for Health Technology Assessment

The Revised Socratic Approach for Health Technology Assessment is a comprehensive question kit intended to conduct a structured assessment of possible socioethical influences that the implementation of a health technology of interest may occasion or has already occasioned. This information is important especially to those responsible for decisions on the technologies. The skeleton of the approach comprises seven basic questions, which are further broken down into thirty-three explanatory questions. The basic questions cover the following domains related to the target technology: the target problem and group; ethical, cultural and societal challenges; challenges with structural changes; issues of characteristics; aspects of stakeholders; issues of the assessment itself; possible additional issues. It is aimed at prompting reflexive dialogue between stakeholders or serving as a checklist for gathering relevant information. (Hofmann et al., 2014).

According to World Health Organization, health technologies may be material or immaterial applications to solve health related problems (Bertram et al., 2021). Consequently, the revised Socratic Approach for Health Technology Assessment can be considered a relevant approach for gathering socioethical information on the influence of implementation programmes in the health care context.

8.4 Analysis methods

Statistical methods (Studies I, II, III)

Frequencies, means and standard deviations (SD) were calculated when appropriate (Studies I, II, III). The number of patients treated applying BA or MI was used to assess therapist adoption activity (Studies I, II). A therapist, having not used either BA or MI during the preceding three months, was regarded as inactive in terms of the respective intervention. Other therapists were regarded as active. The relative share of the active therapists in the whole intended target group was calculated to assess the final penetration of the BA and MI (Study II). Chi-square tests were used for comparisons in survey participation between the therapists' professional education, work experience, activity in using interventions learned earlier, perceived need for new training and proportion of registered psychotherapists (Study II).

Cronbach's alphas were calculated for the 7-item Usefulness Scale (Study II), ICS (Study III) and the six-item set for the perceived main clinical goals of the ODP. Attitudes and usefulness were measured on 6-point Likert scales but for the analyses, the ratings for each item were dichotomized as positive or negative (Studies I, II).

The Usefulness Scale and the change in it between each survey point was used to assess the therapists' experience of the BA and MI (Studies I, II). Work experience and former education (professional background) were also included as explanatory factors. For the analyses, psychologists and nurses were pooled due to the relatively low number of the psychologists. In addition, the associations between the number of treated patients and the questions on attitudes related to the therapy training were examined separately. Paired samples t-tests with 95% confidence interval (CI) were used in comparisons between q1 and q3, and between q2 and q3 Usefulness Scale total scores with data from therapists responding to both surveys (Study II). For comparisons between active and inactive users of BA or MI, independent samples t-tests (95 % CI) were used in terms of the Usefulness Scale (five items; items 1 and 2 leaved out from subgroup analyses as they were left blank if inactive therapist) and ICS scores (Study II).

The differences between subgroups were calculated with t-tests and with non-parametric tests (the Wilcoxon test and the Mann-Whitney *U* test) (Study I). Spearman's correlation coefficients (r) were calculated for BA and MI UAI and for the Usefulness Scale and ICS total scores (Study II) and for Impact-SGR, perceived support from team leaders, the Change index and each four possible obstacles (Study III). Pearson's correlations were calculated for UAI and ICS (Study II). The normality of the distributions for the Usefulness Scale and the ICS were tested with Q-Q plots showing normal distributions (Study II).

General linear univariate models were used to predict the perceived favourable intervention characteristics of MI and BA at q3 (Study II). In these models the ICS

total score for MI or BA (q3) was used as the dependent variable while therapist's background information (work experience, activity in using previously learned interventions and perceived need for new training) and adoption intention (q1) as independent variables.

Two hierarchical linear regression models were used to predict the Impact-SGR (Study III). The first model included the support from team leaders and four possible obstacles as explanatory variables. The second model included the explanatory variables of the first model and the Change index.

The limit of statistical significance was set at $p < 0.05$ (Studies I, II). Analyses were performed with SPSS statistical software, version 19.0 for Study I and with version 22 for Study III (IBM Corp., Armonk, NY, USA) and with Power and Sample Size Calculator for Study II (Dupont & Plummer, 1990).

Qualitative methods (Studies II, III, IV)

The strategies and activities included in the ODP programme plan were analysed deductively against three NPT sub-processes: implementation, embedding and integration, which are presented in Table 3 (Study II). Responses to both open-ended questions in Study III - the therapists' perceptions of the three most important goals of the ODP and the Censure and Praise - were both analysed using inductive qualitative content analysis (Graneheim & Lundman, 2004). The item Censure and Praise was further analysed by a typological method to form the respective model cases (Ayres & Knafl, 2008). In Study IV, the narrative on the realization of the ODP was analysed through deductive qualitative content analysis (Schreier, 2014) guided by NPT core constructs (Table 2). The qualitative analyses were processed manually with the aid of an ordinary word processor.

Triangulated analysis of the case consultations (Study III)

Information on case consultation groups was obtained from the therapists' open feedback by Censure and Praise, short semi-structured interviews with those ODP executives that provided the consultations and the participant lists of the consultations. All this information was assessed together and extracted for factors plausibly explaining the participation activity and changes in it.

9 RESULTS

9.1 Early assessment of implementing evidence-based brief therapy interventions among secondary service psychiatric therapists (Study I)

Fourty-five therapists completed q1 and 34 of them had introduced MI/BA. With these interventions, 29 had treated 1–10 patients and five had treated > 10 patients (the frequencies include both the study and non-study patients). Twenty-four therapists responded to q2, and eight of them had applied these interventions with 1–10 patients and 16 with > 10 patients. Regarding work experience, no difference was detected in the total number of patients (including both study patients and non-study patients) treated with MI/BA between the groups with 10 years' experience or less (q1: n = 18, q2: n = 19) or more than 10 years (q1: n = 25, q2: n = 10) of work experience (q1: p = 0.37, q2: p = 0.87, Mann-Whitney *U* test). At the time of q1 and q2, the numbers of study patients were compared between the groups with different levels of education (psychologists and nurses: n = 33 vs. practical nurses: n = 10 in q1, and n = 24 vs. n = 5 in q2). The result was almost statistically significant in q1 and significant in q2 (q1: p = 0.059 and q2: p = 0.023, Mann-Whitney *U* test). In q1, alike, but a non-significant (p = 0.10) difference was observed between the groups with different educational levels in treating non-study patients; the therapists with higher education were more active in introducing the new interventions.

No differences were found when the numbers of study patients treated at the time of q1 were compared a) between the groups with different levels of reported use of previously learnt therapy skills (at most "sometimes" n = 19 vs. at least "quite often" n = 24) and b) between the groups with different levels of perceived need for training in new interventions (at most "sometimes" n = 17 vs. at least "quite often" n = 26).

The average of sum score on the seven usefulness questions was 28.5 (range: 17.0–43.0, SD: 5.4) in q1 and 28.7 (range: 22.0–39.0, SD: 4.3) in q2. The average of the difference of sum scores from q1 to q2 was −0.2 (range: −11.0–9.0, SD: 4.9; p for mean difference q1 vs. q2 = 0.883, t-test). In comparisons of change in individual usefulness questions from q1 to q2, the only significant change indicated a

strengthening of perceived adoption of BA (p = 0.016, Wilcoxon test). The reliability of the seven usefulness items was 0.869 (Cronbach's alpha), and the range of inter-item correlations was 0.250–0.702.

The change in the sum scores of the usefulness questions from q1 to q2 was compared between the therapists who had treated non-study patients only (n = 6) and those who had also treated study patients (n = 18). There was a difference in trend level, with a more positive change in perceived usefulness among those who had treated study patients than among those who had not (p = 0.075, Mann-Whitney *U* test). The change in adopting BA and MI from q1 to q2 was evaluated by perceived need for training in new interventions (at most "sometimes" n = 8 vs. at least "quite often" n = 16). Adopting MI was significantly more positive among those who reported less need for training in new approaches than among those who reported more need for training (p = 0.045, Mann-Whitney U-test). Adopting BA did not differ between the groups (p = 0.29, Mann-Whitney *U* test). The number of study patients did not differ between the groups (q1: p = 0.88, q2: p = 0.30, Mann-Whitney *U* test).

The sum of usefulness scores on q1 and q2, as well as the change in sum scores between these two survey points was compared by therapists' professional background (work experience, level of education, use of previous training in therapy skills, and perceived need for additional training). The sum score in q1 was higher in the group with greater reported need for training in new interventions (at most "sometimes" n = 13 vs. at least "quite often" n = 20) (p = 0.015, Mann-Whitney *U* test), but the other profession-related variables were not associated with the usefulness scores or changes in these.

9.2 What is important for the sustained implementation of evidence-based brief psychotherapy interventions in psychiatric care? A quantitative evaluation of a real-world programme (Study II)

At the final survey point q3, 33 therapists out of the study sample (n=57) completed the questionnaire, resulting in a response rate of 58%. No significant differences were found in comparisons with survey participations between the therapists' professional education (university or UAS/vocational college; chi^2=1.62; df=2; p=0.45), work experience in years (at most 10/more than 10 years; chi2=0.80; df=2; p=0.67) activity in applying interventions learnt earlier (at most sometimes/at least

quite often; chi^2=0.28; df=2; p=0.60), perceived need for new training (at most sometimes/at least quite often; chi^2=0.79; df=2; p=0.37) and proportion of registered psychotherapists (no/yes; chi^2=2.34; df=2; p=0.31). The following distributions (mean±SD) in q1 were found for those responding to q3: activity in using interventions learnt earlier (3.88±1.45), perceived need for new training (3.88±0.93) and adoption intention (3.88±0.99).

9.2.1 Reliability of the Intervention Characteristics Scale

The Cronbach's alpha for all 24 ICS items was 0.928; for 12 items of BA alpha = 0.954 and of MI alpha = 0.928. The factor analysis resulted in two specific 12-item factors for BA and MI, one for each (rotated factor loadings 0.70–0.91 for BA and 0.55–0.87 for MI; Supplementary Table 2 in Supplement 2).

9.2.2 Changes in usefulness over time

There were no significant differences between the Usefulness Scale total scores (mean±SD) at the q1 (n=33), q2 (n=30), or q3 (q1 vs. q3: 28.5±5.4 vs. 30.9±5.2; t=−1.61, df=53, p=0.11, 95% CI −5.3–0.6; q2 vs. q3: 28.7±4.3 vs. 30.9±5.2; t=−1.67, df=50, p=0.10, 95% CI −4.8–0.4, t-test).

9.2.3 Penetration and sustainability of the use of interventions

For BA, 23 (40% of the study sample) out of the 33 therapists who completed q3, were active and eight were inactive users (excluding two questionnaires with missing information). Consequently, these 23 active BA-users imply self-reported penetration of 32% among the target group (n=72). Of the active therapists, 17 (73.9%) reported having applied BA with one or two patients and the remainder six therapists with at least three patients during the preceding three months.

For MI, 25 (44% of the study sample) therapists were active users and eight were inactive users. Consequently, these 25 MI-users imply self-reported penetration of 34% among the target group (n=72). Of the active therapists, 12 (48.0%) reported having applied MI with one or two patients and the remaining 13 therapists with at least three patients during the preceding three months.

9.2.4 Associations between sustained use of the interventions and perceived intervention characteristics

Comparisons between therapists active and inactive in BA showed a total score of five Usefulness Scale items (items 1 and 2 omitted) (mean±SD) 23.2±4.1 for active therapists (n=23) and 18.9±1.2 for inactive therapists (n=8) (t=−4.51, df=29, p<0.001, t-test). In the corresponding comparison for MI, the total scores were 23.2±3.9 for active therapists (n=25) and 18.9±1.5 for inactive therapists (n=8) (t=−4.61, df=30, p<0.001, t-test). The total ICS score between therapists who were active and inactive in either BA or MI was also compared. Both comparisons showed a statistically significant difference: BA: active (n=23) 53.1±10.1 vs. inactive (n=5) 40.2±9.3 (t=−2.62, df=26, p=0.02, t-test) MI: active (n=25) 58.3±8.3 vs. inactive (n=8) 49.5±5.9 (t=−2.75, df=31, t-test, p=0.01). The higher scores on the Usefulness Scale and ICS indicate a more positive experience.

Correlations between the use of BA and MI and the Usefulness Scale and ICS total scores are presented in Table 14. Correlations between the use of BA and MI at q3 and ICS perceived attributes were significant (p=0.01; n=23 for BA and n=25 for MI).

Table 14. Correlations (r) between both behavioural activation (BA) and motivational interview (MI) Using Activity Index (UAI) and, respectively, their perceived attributes according to the Intervention Characteristics Scale (ICS) and the Usefulness Scale in the final survey.

		BA UAI	MI UAI
Perceived ICS attributes of BA (sum variable)	r	0.67*	0.28
	N	23	25
Perceived ICS attributes of MI (sum variable)	r	0.39	0.60*
	N	23	25
Perceived Usefulness Scale of BA & MI (sum variable)	r	0.42**	0.55***
	N	20	22

*P<0.001, **P=0.067, ***P=0.008

9.2.5 Associations between therapist-related variables and perceived intervention characteristics

The general linear univariate models for BA and MI with ICS perceived attributes in q3 as dependent variables resulted in insignificant models (n=18; p=0.75, F=0.48, df=4, ηp^2=0.13 and p=0.80, F=0.40, df=4, ηp^2=0.11 respectively). None of the predictors (work experience, activity in use of interventions learned earlier, perceived need for new training and anticipated future use of BA and MI at q1) displayed a significant effect in either of the models.

9.2.6 Analysis of the implementation plan

The ODP implementation plan comprised several strategies that fell into one or the other of two NPT sub-processes: implementation or embedding. The analysis revealed that strategies for integrating the EBTs into the organizational structures had not been incorporated into the implementation plan. For more detail, see Table 15.

Table 15. Analysis of strategies incorporated in the implementation plan of the Ostrobothnia Depression Programme according to the sub-processes of Normalization Process Theory (May and Finch, 2009).

NPT Sub-process	General description	Strategies used in ODS	Description
Implementation	Social organization of bringing practices into action.	Assigning the programme executives	The programme executives were nominated from among the internal staff. Their regular job descriptions were matched with the programme.
		Initial invitation of units	The units to invite were selected by the head of administration. The units were free to decide on participation in ODS. Further, they were free to determine how many and who of their therapists would be trained.
		Training workshops	Two one-day workshops in BA and MI, one for each, including lectures and supervised case simulations. Attending the workshops was the only prerequisite for a therapist to be deemed ODS-enrolled.
		Self-study material	Written clinical instructions for MI and a semi-structured manual for BA. Training videos for rehearse made available on the employer´s website.
Embedding	The processes through which practices do or do not become routinely incorporated in the everyday work of individuals and groups.	Selecting the evidence-based treatments to implement	The selection criteria were 1) a good innovation-system fit and 2) appropriate brief psychotherapies for the treatment of depression with possible comorbid anxiety and substance abuse disorders.
		Case consultations	Once a month 2009-2013. Attendance was voluntary.
		Research nurse´s unit visits	Monthly unit visits to address practical issues of the programme.
		Email bulletins	Information sent about monthly: on the progress of the programme, answers to diverse clinical issues emerging and relevant supportive material.
Integration	The processes by which practices are reproduced and sustained among the social matrices of an organization.	Not applicable	

9.3 Making implementation programmes better. Mixed-methods case study of an implementation process for two evidence-based brief psychotherapies (Study III)

9.3.1 Quantitative data

The therapists' perceptions of progress achieved (mean±SD) in the main clinical goals was measured by VAS each and varied between 58±24 and 71±20 (Table 16). Addressing substance abuse earlier than before yielded the highest scores, followed by improvement in the goal setting at the beginning of the therapy. The reliability of this six-item set was 0.827 (Cronbach's alpha).

Table 16. Data regarding responses to items on progress on the six clinical dimensions applying BA and MI.

Item [a]		Mean	SD
To what extent did the practices progress on the following clinical dimensions during the Ostrobothnia Depression Programme?			
a.	Comprehensive initial examination routinized with depressive patients.	58	24
b.	Clear goals set at the beginning of therapy.	64	9
c.	Treatment terminated until the goals have been satisfactorily achieved, or the conditions do not allow treatment to continue.	58	22
d.	Substance abuse is evaluated early in treatment.	71	22
e.	Use of brief psychotherapies enhanced.	59	21
f.	Complicated problems detected earlier in treatment leading to more comprehensive needs-based treatment.	61	19

[a] n=33 for all items in Visual Analogue Scale with extremities 0 = "not at all" and 100 = "as well as possible". The means were graded as <50 = failure, 50 = moderate and >50 success.
Abbreviations: BA=Behavioural activation; MI=Motivational interviewing.

The therapists appraised the positive impact of the ODP on their own work with a mean SGR of 6.8 (SD 1.1). Table 17 presents the therapists' perceptions of the degree of Change Index, support from team leaders and four possible obstacles to being engaged in the ODP. "Personal exhaustion due to a variety of projects" was the obstacle manifesting with the lowest scores of 40±30 (mean±SD) and the "Other current team-related internal issue" was second lowest with scores of 44±33, implying that those issues did indeed impede the progress of the ODP.

Table 17. Data regarding perceived support from the team leaders, Change index and some possible obstacles.

Item		Mean	SD
To what extent did you perceive the team leader supported your participation in the ODP[a]?		60	29
The ODP has led to changes in the clinical practices followed by our team. (Change index)		41	24
To what extent have the following possibly hampered the execution of the ODP in your team?			
a.	Other simultaneous developmental tasks or projects	60	29
b.	Personal exhaustion due to a variety of projects	40	30
c.	Other current team related internal issue	44	33
d.	Other current organizational issue external to own team	51	33

Note: n=33 for all items in Visual Analogue Scale with extremities 0 = "not at all" or "hampered very seriously" and 100 = "as well as possible" or "did not hamper at all". The means were graded as <50 = failure or serious, 50 = moderate and >50 success or easy.
[a]Ostrobothnia Depression Programme.

The ODP training programme obtained a mean SGR of 7.5 (SD 1.3, n=33). The videos for reinforcing the training obtained a mean SGR of 7.9 (SD 0.64, n=21), and the case consultations in group mode 7.9 (SD 0.79, n=18). Twelve (36%) of the responding therapists had not watched the videos and 15 (45%) had not participated in the case consultations.

In the linear regression models explaining the Impact-SGR, support from team leaders appeared as a significant explanatory variable in the first model and Change Index in the second model (support from team leaders lost its significance in the second model) (Table 18).

Table 18. Coefficients of linear regression mediator model predicting the therapists' appraisal of ODP with an SGR.

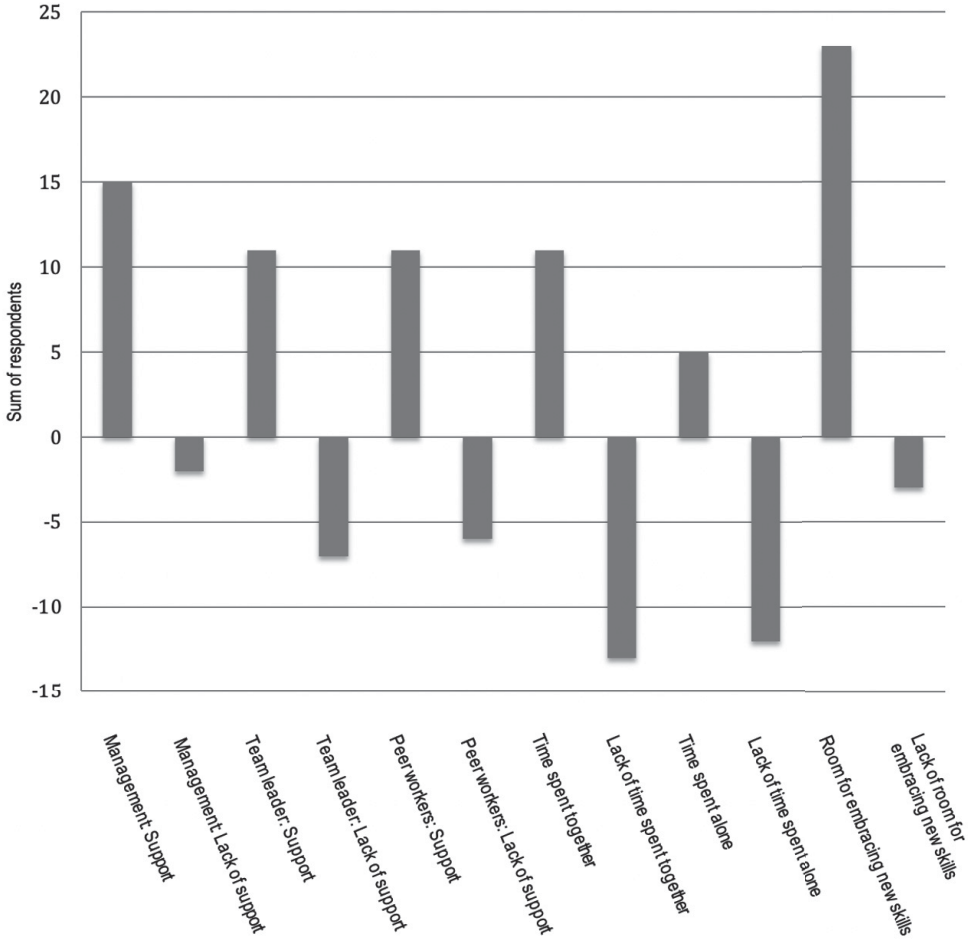
		Unstandardized Coefficients		Standardized Coefficients	
	Model	B	Std. Error	Beta	Sig.
1*	Support from team leader	0.014	0.006	0.362	0.039
2*	Support from team leader	0.008	0.006	0.220	0.181
	The ODS has led to change in clinical practices followed by the teams	0.020	0.007	0.442	0.010

*Adjusted R Squares were 0.103 and 0.259 for models 1 and 2 respectively.
Abbreviations: ODP = Ostrobothnia Depression Programme; SGR = School grade rating.

In the question about factors potentially facilitating or hampering progress (Figure 8) "opportunity to acquire new skills" was markedly indicated as facilitating

and two items indicating support from peers and managers manifested slightly positively. By contrast, the items on time resources available for practising alone as well as together with the team both inclined towards a deficit, which hampered progress.

Figure 8. Frequencies of how often the provided factors were perceived facilitating or hampering embracing the EBTs. An item left blanc was regarded as neutral.



9.3.2 Qualitative data

The open-ended question examining the therapists' perceptions of the three most important goals of the ODP obtained 92 responses. The main category was drawn

from the question itself: 'therapists' perceptions of the most important goals of the ODP'. The qualitative content analysis of the responses yielded the four following subcategories and the responses fell between them as follows: Perspective of own work, e.g. new tools, n=25; Perspective of patient, e.g. better treatment, n=25; Perspective of team, e.g. common practices, n= 21; and Perspective of research e.g. comparing EBT and treatment as usual, n=21.

In the qualitative content analysis of the open-ended questions for feedback, the question itself provided the two main categories: Censure (C) and Praise (P). The C- and P-responses were analysed conjointly, and this yielded the following three data driven subcategories: feedback on training and clinical support, feedback on the treatment model implemented and feedback on the simultaneously conducted implementation programme and clinical research. A few responses could not be classified, and these were labelled as non-categorized feedback. Each response was allocated to an appropriate subcategory. The typological method was used to further analysis, which resulted in model cases of C- and P-types for each of the three subcategories. A concise summary of these is presented below. The analysis and the formation of the model cases are presented in more detail in Additional File 1.

Feedback on training and clinical support embraces satisfaction and dissatisfaction with equal emphasis. The C-type would have wished for decentralized clinical support, more comprehensive training and more thorough onboarding of new coming staff

Feedback on the treatment model implemented was stressed positively, validating the feasibility of the treatment model. Moreover, the integrated treatment model was perceived to facilitate addressing the dual diagnosed patients' needs in treatment. The opposite experience, but with less emphasis, highlighted the inflexibility of the treatment model.

Feedback on the simultaneously conducted implementation programme and effectiveness study was mostly critical in regard to their concurrent timing and practices of administering the research as well as for the unfair distribution of the workload regarding the patients enrolled in the clinical research.

9.3.3 Triangulated analysis of the case consultations

Participation in the case consultation groups was at its highest during the first year and then decreased slightly, until it fell considerably during the last year because of reasons related to both the organization and to individuals. The following possible

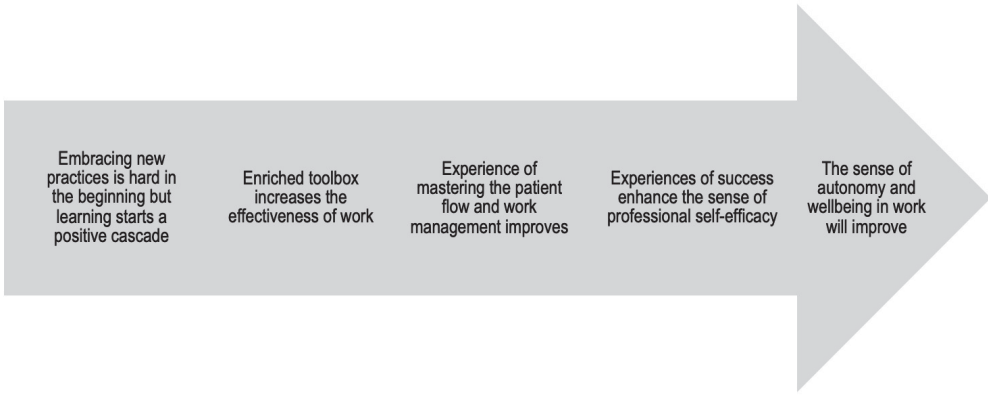
explanatory factors were identified: variation in geographical distances, differences in attitudes towards the ODP between the units, a change in the profile of the clientele during the ODP and the fact that some therapists became discouraged over time. Two units were located very close to the venue and the rest about an hour away by car. Therefore, attending the case consultations was quite time-consuming for clearly more than half of the potential participants. Of the two closest units, one achieved the highest attendance rate and the other the lowest rate. In the most active unit, the team leaders were active in allocating time to the therapists enabling them to participate in the case consultations. By contrast, in the most inactive unit, the ODP had been subject to considerable doubts from the very beginning.

9.4 Importance of congruence between communicating and executing implementation programmes: a qualitative study of focus-group interviews (Study IV)

Two main critical issues emerged, which we interpreted to shed light on the friction encountered during the ODP: 1) Right from the outset there was tension between the simultaneously administered implementation programme and the effectiveness study. Although the programme executives clearly articulated that implementation and quality improvement were the principal purposes, the ambitions related to the effectiveness study practically outstripped those of the implementation programme. 2) The programme theory was grounded on the conception that the goals of the ODP were feasible by addressing the programme strategies almost exclusively to grassroots therapists (Table 19). The approach addressed to the grassroots therapists was based on the idea of learning by doing. The programme theory was purely heuristic and implicit as well as it was not tested against any formal implementation theory, model or framework. Those who designed the ODP drew on their previous experience of administering developmental programmes and on their pedagogical expertise as well as on their experience of serving as trainers. In addition, they had individual experience of their own training in psychotherapy yielding a positive

impact on mastering clinical work (Figure 9). The results underlying these two issues are next presented in more detail.

Figure 9. Cascade of impacts that the Ostrobothnia Depression Programme was believed to yield at the level of an individual therapist.



9.4.1 Lack of involvement of key stakeholders

The reasoning of launching the ODP and the determination of its goals took place mostly at a high level in the organization (Table 19). Prior to the ODP, the clinical director was aware of the mounting distress among the grassroots personnel due to accelerating patient flow. The ODP was launched to combat this problem. The project group included no team leaders or grassroots therapists from the units intended to be addressed. The team leaders were not invited to negotiations until the phase of finalizing the programme plan. The primary goal the ODP project group was to achieve quality improvement in clinical practices. However, the team leaders perceived that the preparatory process had proceeded one-way, top-down, which they considered a deviation from the normal collaborative two-way managerial practices adhered to while preparing organizational strategies. They saw one-way preparation as an acceptable standard practice for research programmes. In addition, in the name of the programme, the term "study" preceded the term "implementation", which strengthened their perception that research was given priority.

In summary, the specification of the ODP was not established collaboratively between various stakeholders, who therefore achieved no shared understanding about the priority between the two endeavours.

Table 19. Preparation of the ODP and stages of involving various stakeholders.

Stake-holder	Stage		Description
The project group*	I	Identifying and analysing the problem to be tackled	Obstructed patient flow and difficulties in work management.
	II	Defining the goals	1. Speed up the treatment process by increasing delivery of brief therapies 2. Increase application of the integrated treatment model to compensate the deficit in the treatment of dual diagnosis patients 3. Measure the effectiveness of the treatment model 4. Improve the work well-being of the staff by strengthening their work management
	III	Preparation of the programme plan	a. Determining the criteria for selecting the interventions to implement b. Determining the criteria for inviting the units to participate c. Designing the treatment model d. Designing the implementation plan e. Designing the protocol for the effectiveness study
The project group and team leaders	IV	Finishing the programme plan.	a. The project group consulted the team leaders a few times for amendments b. The plan was modified slightly in terms of practical execution according to the comments

*The project group = The clinical director of the department of psychiatry, the principal and associate executives of the ODP and a senior consultant, and for execution the group was reinforced with two assisting research nurses. They were all permanently employed in the main target organization.
Abbreviation: ODP = Ostrobothnia Depression Programme.

9.4.2 Lack of consideration for readiness-for-change in the recruitment

Participation in the ODP was meant to be voluntary for the units invited. Not all psychiatric units of the hospital district were invited. The invitations were issued according to two criteria: 1) the clinical director's conception of the positive readiness for change in the units and 2) the number of patients needed for the effectiveness study. The largest unit was invited according to the second criterion only to satisfy the needs of the effectiveness study. The largest unit declined the

initial invitation but was persuaded to participate after a one-year delay. The other units accepted the initial invitation.

In summary, involving the largest unit in the ODP was fundamentally incongruent with the first invitation criterion 'readiness for change' and also incongruent with the actual willingness to participate prevailing among the staff there.

9.4.3 Absence of buy-in from key stakeholders

Most of the voluntarily participating units' team leaders considered the ODP as an opportunity to learn something new and to review the prevailing clinical practices, although they still perceived it primarily as a research programme. The reception of the ODP between units varied from agreeing with it, through confusion, to considerable opposition. The programme executives recognised one team where the collaboration had been smoothest. The ideas evinced by the ODP were congruent with the team's own ideas, which they had already been working on. By contrast, considerable resistance arose in the largest unit, which had initially shown reluctance to participate. In addition, a previously unarticulated confusion about the ultimate intentions of the ODP was eventually articulated in the focus group interview. Addressing the resistance heavily taxed the executives' resources. The team leader of the largest t unit deemed the goals for the ODP to be relevant but considered that the change aimed at was too ambitious to be loaded on one programme. Moreover, the team leader considered the conjoint programme for implementation and clinical research as an improper setting to reach the intended goals.

Despite enrolment in the ODP at the level of units, the therapists' enrolment in the training varied widely between the units. At best, all the therapists of one unit completed the training. At worst, only one or two therapists of a unit participated, including one temporary substitute. More therapists from some of the units were assigned to the training later and some of them were motivated mainly by the hope of getting the ODP over and done with.

In summary, despite the participation, collective enthusiasm to work on the ODP varied widely across units between adherence and resistance. Two essential manifestations of this tension were identified: the therapists' enrolment in the training varied across units from poor to comprehensive as well as the motivation of some therapists joining in at later stages was dubious.

9.4.4 Participant withdrawal and staff turnover

Due to at least two reasons the number of patients to be recruited for the effectiveness study accumulated more slowly than anticipated: 1) some of the initially keen therapists got tired during the programme and withdrew and 2) staff turnover cut down the number of ODP-trained therapists. Recruiting the study patients began to accumulate on fewer shoulders, which caused distress. The question, "when will this be over?" arose among the therapists.

In summary, the accumulation of workload regarding satisfying the needs of the effectiveness study biased progressively during the course of the ODP, resulting in programme fatigue.

9.4.5 Absence of focus on implementation effort

Some positive experiences in the early phase of the ODP encouraged the programme executives to think that the strategies deployed in the ODP had the potential to bring about the desired cultural change in clinical practices at the level of the entire department. However, they became hesitant as the programme proceeded, partly since they noticed that recruiting patients for the effectiveness study occupied too large a role and the idea of implementation began to fade. The team leaders had a shared perception that running the implementation and clinical research programmes simultaneously caused confusion among the therapists. The number of patients needed for the effectiveness study was intended not only to ensure the statistical strength of the study but also to provide a sufficient amount of the practice needed to reinforce the skills acquired in BA and MI. The drive to satisfy the scientific interest escalated as the ODP proceeded and this exacerbated the therapists' sense of pressure, which further amplified their negative perception of the ODP.

In summary, the idea of the implementation declined in prominence and the effectiveness study gained in significance as the ODP progressed, which jeopardised achieving the original goal of widespread implementation of BA and MI.

10 DISCUSSION

The ODP, a regional real-world programme in psychiatric secondary care, was launched to foster the transition from extended treatment periods of non-psychotic patients towards more time-limited treatments and also to compensate the deficit in delivery of integrated treatment approaches for dual-diagnosed patients. Increase in delivery of evidence-based brief psychotherapy interventions was determined as the core strategy to achieve the objective. Two such evidence-based interventions, BA and MI, were selected to be implemented through the programme. The clinical effectiveness study of the BA and MI was included in the ODP to ascertain its clinical validity. The implementation research, the subject of the dissertation at hand, was included to ascertain the operational validity of the programme. This implementation research aimed to examine whether the interventions remained in use after the end of the programme and to what extent as well as to identify the enabling or inhibiting factors behind these outcomes. The ultimate aim was to extract knowledge beneficial to those launching future programmes striving for successful and sustainable implementation of EBPs in the context of health care.

10.1 Penetration and sustainability of the BA and MI

The ODP achieved a penetration of about a third in terms of the adoption of the BA and MI among the target group surveyed a few months after the active programme phase (Study II). Rigorous comparison with other studies is not feasible due to discrepancies in settings and ways of reporting (Stirman et al., 2012). Despite this variation, it seems that the penetration in the ODP was rather less than in some previously reported programmes, for instance a large system-wide programme for implementing EBTs for the treatment of post-traumatic disorder (Rosen et al., 2016; Stirman et al., 2012). Moreover, it is likely that the active therapists delivered at least the BA to a lesser extent (mostly with one or two patients during the preceding three months) than might have been anticipated given their usual clientele (Study II). This interpretation is in line with those of earlier studies (Rosen et al., 2016; Shiner et al., 2013).

The sustainability of an implemented practice is a long-term ongoing process the status of which can be ascertained at different time points (Lennox et al., 2018). There emerges variation in the exact definitions of the construct but according to its wider meaning sustainability covers both the long-term maintenance of the target EBP and the degree of up-scaling of it over time (Lennox et al., 2018). In the case of the ODP, the degree of penetration showed practically no change in the course of the programme (Studies I, II). However, the moderately low response rate and variation in individuals responding to at each longitudinal survey point renders risky any reliable longitudinal assessment of the penetration. In addition, a few months is too short a time span for assessing the actual sustainability. Nevertheless, there were certain indications of a decline in the long-term vitality of the BA and MI at organizational level. The open feedback in terms of usage of the BA and MI was stressed towards satisfaction but dissatisfaction also occurred to some degree (Study III). Satisfaction at the level of the grassroots staff is not enough to ensure the sustainability of implemented EBPs at organizational level (Scheirer, 2005). Detection of some discouraged and thus withdrawing therapists (Study III), increasing resistance towards the end of the programme (Study IV) and lack of strategies for keeping the BA and MI going also after the active phase of the ODP (Study II) jeopardized their sustainability. As NPT states, the sustainability of implemented innovations entails that they become integrated into stable organizational structures (May & Finch, 2009). Strategies making this happen are called sustainability strategies, of without which the desired EBPs most likely fade at organizational level after the active phase of their implementation programmes (Davies & Edwards, 2013; Edmunds et al., 2014; Karlin & Cross, 2014; Proctor et al., 2011; Ruzek et al., 2015; Stirman et al., 2017).

10.2 Factors affecting adoption activity and sustainability

10.2.1 Therapist- and intervention-related factors

The therapists' perceived favourable experiences regarding relative advantage, compatibility and complexity (or ease of use) of BA and MI were associated with their use after the active phase of the programme (Study II). This finding corroborates previously established evidence in terms of implementing EBPs (Cook, Dinnen, et al., 2015; Damschroder et al., 2009; Godin et al., 2008a; Greenhalgh et

al., 2004; M. E. Rogers, 2003; Scott et al., 2008). The favourable perceptions of characteristics of the BA and MI (Study II) and overall satisfaction of applying them in their everyday work reported by some of the therapists (Study III) suggest a good innovation-system fit of the interventions. The concept of innovation-system fit reflects the interaction between the organization and the EBP, and it has been shown to significantly affect the sustainability of EBPs (Proctor et al., 2011; Rahm et al., 2015; Ringle et al., 2015; Sayer et al., 2017).

None of the therapist-related background factors (work experience, activity in using interventions learned previously and perceived need for new training) or one's own prediction on future use of the interventions at the one-year point were associated with ICS score at the final survey. This finding likewise corroborates those of earlier studies (Beidas & Kendall, 2010; Godin et al., 2008b).

Optimism have been expressed in that therapists' self-reported need for new training and positive intention to adopt the EBP introduced at the early stage of a programme would predict the likelihood of future uptake of the intervention intended for their most common patient groups (Moser et al., 2004). Before the conception of the ODP, signals about a need for advanced and systematic treatment methods for dual-diagnosed patients was heard from numerous psychiatric and social grassroots workers within primary and secondary care and social work from several regions (Study IV). This fuelled optimism among those who designed the ODP (Study IV). Some positive signals in Study I reinforced these positive expectations (Study IV). These expectations however became disappointed (Study II, IV). Indeed, several earlier studies reports decline in initial enthusiasm as a programme proceeds (Edmunds et al., 2014; Godin et al., 2008b; Ruzek et al., 2015). Adoption intention itself is a multifactorial concept, which alone has shown to be an insufficient predictor of sustained implementation of EBPs (Godin et al., 2008b).

10.2.2 Programme- and organization-related factors

The ODP implementation plan had several evidence-based advantages, such as a versatile combination of active and passive learning methods, multifaceted materials available for practice after the workshops, option to participate in case consultations in groups (Beidas et al., 2012; Beidas & Kendall, 2010; Edmunds et al., 2014). The summative evaluation (Study II) and the cross-sectional mixed-methods survey (Study III) together showed that the ODP training intervention succeeded in initiating the desired change in clinical practices. This was an encouraging result, also

from the perspective that the ODP was driven by in-house human resources and expertise without any external funding and the training intervention was conducted with relatively low resources. Also, the support from the team leaders and peers promoted the change in those units where the ODP was positively received (Studies III, IV); earlier evidence has also established these factors as important in terms of implementing EBPs successfully and sustainably (Boaz et al., 2011; Rafferty, 2013; Rosen et al., 2016; Scheirer, 2005). An additional strategy focused on supporting the programme champions separately could have enabled the decentralization of the low-threshold clinical support in the application of the EBPs during the everyday work and also making the support more systematic (Cranley et al., 2017; Greenhalgh et al., 2004), which some therapists called for (Study III).

Despite some clearly positive indicators, the long-term prediction of the sustainability of the BA and MI is precarious, as stated earlier. There emerged a call for more thorough training in the BA and MI for some of the therapists and at same time the option for case consultations was underutilized (Study III). The staff turnover resulted in the failure of ODP trained therapists by time (Study III, IV). Moreover, there occurred incongruence in understanding between different stakeholders about what is the primary aim of the ODP: sustainable transition towards increasing the delivery of brief psychotherapy interventions by implementing the BA and MI or the effectiveness study of the BA and MI (Studies III, IV).

The hybrid design of the ODP was a trickier issue (Study IV). Such a design is rational and has obvious advantages, such as more rapid knowledge accumulation on both clinical and organizational aspects relevant in decision making (Curran et al., 2012; Landes et al., 2020). Combining the clinical effectiveness study of the BA and MI with their implementation programme was justified by the idea of ensuring enough practice for the therapists during the programme and serving also as a means of clinical quality control of the programme. The negative attitude arose from the view that the ODP had bitten off more than it could chew, which entailed an unreceptive climate among some of the participating units and individuals. This negative setting was exacerbated towards the end of the programme since the needs of the clinical study overrode the needs of the implementation programme in the actual executive practices. The foregoing reveals an understandable inclination to ensure scientific robustness when striving towards evidence-based health care. Indeed, in the present case this provoked unreceptivity and even resistance among the programme addressees. Whether this could have been avoided by inviting the various stakeholders into collaborative preparation at an earlier phase remains

unknown. Indeed, an early participatory approach to collaborative brainstorming about the determination of the problem to solve and by what means *(what),* planning the design of the programme *(how)* and whom this concerns and what is expected of them *(who)* has been shown to be a more fruitful approach in achieving the buy-in among the various stakeholders (Engeström, 2000; Fixsen & Ogden, 2014; Greenhalgh et al., 2004; Hickey et al., 2018; May & Finch, 2009). The ultimate goal of the early collaborative approach is to build up a shared understanding about what can be achieved and by what means. This was not fully achieved in case of the ODP.

As mentioned above, Studies II, III and IV revealed deficits in the package of the strategies included in the ODP implementation plan. Westerlund et al. (2019) note the widespread occurrence of similar challenges internationally. They turn the discussion more towards the challenge of implementing evidence-based implementation practices. This can be deemed more of a structural problem challenging the organizations and their managements when launching future programmes or other reforms. There are several TMFs available which would be appropriate for this endeavour, and it may be feasible to consult two or more of these. For instance, 1) a determinant framework provides a checklist for relevant aspects and stakeholders to consider or be involved in, 2) a conceptual framework of possible outcomes helps anticipate and sort the various consequences (desired and unexpected) of the programme and 3) a process model or framework facilitates mapping of the route of practical executive actions towards the desired outcomes (Esmail et al., 2020; Nilsen, 2015). In addition, outlining a comprehensive logic model in a wide collaboration at the pre-programme phase could help the identification of pitfalls in advance and the bridging of these (Bucher, 2010; Smith et al., 2020).

10.3 Methodological considerations

At the time of starting to design the ODP and the included implementation research (2007-2008) there were fare fewer advanced implementation TMFs available than there are at present. The number of published articles on implementation science has increased substantially and at an accelerating speed since then (Armstrong & Sales, 2020) likewise the availability of various implementation TMFs has improved markedly (Esmail et al., 2020; Nilsen, 2015). Due to this, the methodology of the studies of this doctoral research has evolved in the course of the process.

Adoption at individual level, *penetration* and *sustainability* at organizational level were selected as final implementation outcomes, which were investigated and explained. Study I revealed that focusing solely on the background factors and attitudes of the intended adopters of the intended EBPs as well as their perceptions on the EBPs was too narrow an approach to explain their actual activity in adopting them. In addition, a need for a more sophisticated instrument for surveying the therapists' perceptions of the intervention characteristics became apparent. The Usefulness Scale did not unequivocally capture enough of especially the therapists' perceptions of the relative advantage, compatibility and complexity related to the introduced EBPs (Damschroder et al., 2009). Thus, a more advanced version of the longitudinal survey and a totally new survey addressing the perspectives of the organization and the programme itself were created for the final survey point (Studies II, III). Indeed, later on a more advanced and validated Perceived Characteristics of Intervention Scale (PCIS) has been published (Cook, Thompson, et al., 2015).

As the ODP progressed, the programme executives were challenged by some of the participating units and individuals, and this increased towards the end of the programme as described in Study IV. Study III provided some explanations for the resistance but not exhaustively enough. Study IV was conceived to widen the information sources and the theoretical frame and thus obtain a more comprehensive and in-depth understanding of the actual realization of the ODP (Hofmann et al., 2014; May & Finch, 2009).

10.3.1 Selection of outcome factors

The Conceptual Framework for Implementation Outcomes introduced in 2.4.1 above sorts the types of outcome factors of implementation research into three categories, namely *implementation outcomes*, *service outcomes* and *client outcomes* (Proctor et al., 2011). In the case of ODP, the *adoption* activity of the intended EBPs at individual level, their *penetration* at the group level and their *sustainability* after the closure of the programme were selected as the outcomes of interest. They constitute a logical continuum to introduce and retain an EBP in an organisation. These three outcome factors are included in the category of *implementation outcomes*. The EBPs' clinical *effectiveness* (*service outcomes*) and impact on the patients' *function* (*client outcomes*) have been investigated in the other arm of the ODP(Luoto et al., 2018, 2021).

Other possible factors that the Conceptual Framework of Implementation Outcomes locates in the category of *implementation outcomes* are *acceptability*,

appropriateness, *costs*, *feasibility* and *fidelity*. Since the Framework did not exist at the time of designing Studies I and II, the outcome factors had to be determined without it. Indeed, several dimensions included in *acceptability*, *appropriateness* and *feasibility* were used as explanatory factors in these studies, including relative advantages related to the intended EBPs, their compatibility and ease of use. Proctor et al. (2011) also states that perceived qualities of this kind by the stakeholders are the usual preconditions for sustained *adoption*. Therefore, they can be taken as explanatory or outcome factors depending on what is deemed appropriate for a given implementation programme or study.

Penetration tells the proportion of the actual adopters among the intended adopters, in other words, the EBP's niche saturation rate (Proctor et al., 2011). If full implementation of an EBP is expected, it is rational to evaluate its *penetration* through the intended teams, units etc. The better the penetration, the more comprehensive provision of the EBP can be expected and this could also promote the achievement of all other expected benefits. *Penetration* is also hypothesized to affect *sustainability* (Proctor et al., 2011). This is logical as higher *penetration* would make the organization more resistant to the detrimental effect of staff turnover, which reasoning the literature also supports (Beidas et al., 2016; Hunter et al., 2017; Lindholm et al., 2019; Warner et al., 2020).

Sustainability refers to the timespan that an implemented EBP remains ongoing in an organization (Proctor et al., 2011). The *sustainability* of an EBP can be seen as a linear endpoint achieved by its implementation programme (Lennox et al., 2018). Two years or more after the end of the active programme phase have usually been used as a timeframe in evaluating *sustainability* from the linear perspective (Stirman et al., 2012). Another perspective is to see the sustainability as an ongoing process that should be nurtured throughout the initial implementation programme as well as after its closure (Lennox et al., 2018). These perspectives are not mutually exclusive. They rather complement each other. The linear approach may be useful in evaluating the success of the efforts targeted at keeping the EBP going at each phase. In the case of ODP, the last point to evaluate the adoption activity was four to five months after the closure of the programme. From the linear perspective, this was far too short a timeframe for evaluating *sustainability*. Instead, from the process perspective, a timeframe of a few months may provide useful information for making a prediction on future progress. In addition, early evaluation of the *sustainability* may help in detecting possible spots for targeting additional interventions to foster the *sustainability*.

Fidelity (or integrity) as an *implementation outcome* factor implies that an EBP is delivered as it has been designed (Perepletchikova et al., 2007; Proctor et al., 2011). Every EBP has its core elements that convey the effects. These elements must be delivered with fidelity to obtain the expected treatment outcomes (Perepletchikova et al., 2007). Adaptability, in turn, refers to the more peripheral elements of an EBP that can be customized to embed the EBP in each individual organisation (Greenhalgh et al., 2004). Fidelity assessment would be important in relation to EBP implementation programmes. Indeed, it is quite a challenging issue to assess. Observational methods provide robust means for the purpose but deploying these entails some thresholds hindering their application. Observational approaches are time and resource consuming (Bond et al., 2011; Hasson et al., 2012; Perepletchikova et al., 2009) and such resources were not available in the present research. The threshold for conducting a self-report-based survey is lower. Indeed, self-reports are easily biased in one direction or another (Beidas et al., 2012; Edmunds et al., 2014; Perepletchikova et al., 2007). In relation to the ODP, a survey-based fidelity assessment was in any case aimed to be conducted but the preparation of a valid survey was insecure and took too so long that the participants might have become aware of it beforehand. Yet a limited initiative was performed with a carefully selected subgroup, but the therapists reacted with confusion and this dimension was omitted from the study design to avoid causing demotivation. On the other hand, fidelity assessment – observational or self-reported – is usually a normative part of the training in various health care interventions. Indeed, in these cases the participants are aware about it beforehand and traditionally these training programmes are not integral parts of organization-led top-down programmes pursuing the full implementation. One apparently positive example is a system-wide EBP implementation programme in VHA where an observational fidelity assessment was required before a certificate of completed training was issued (Ruzek et al., 2015). However, there is a need for more high-quality research on how an integral and carefully prepared fidelity assessment related to a full implementation initiative of an EBP may affect receptivity towards the programme among its addressees in different cultural contexts. The conflicting perspectives on fidelity assessment described above make it difficult to increase the use of observational approaches in relation to implementation programmes, but it is worth trying to find ways to accomplish it.

10.3.2 Validity of the quantitative surveys of intervention characteristics

Quantitative surveys to capture the programme addressees' perceptions of the characteristics of the intended interventions were created for Studies I and II. The characteristics of interest were those that were hypothesized to influence the addressees' perceived usefulness of the interventions. At the time of designing the ODP implementation research, there were no ready-made, validated surveys available for the purpose, or the researchers were not aware of such. Later on at least one well validated scale for examining programme addressees' perceptions of intervention characteristics (PCIS) has been published (Cook, Thompson, et al., 2015).

The question panel on the perceived usefulness of the interventions applied in Study I was constructed for the particular study, still drawing on prior scientific knowledge. The clarity of the survey was tested with a few psychiatric nurses from non-participating units and some amendments were made by the feedback. As a midpoint evaluation, Study I served as a pilot test for the selected theoretical approach as well as for the survey. The findings revealed the need to widen the theoretical perspective from the programme addressees to the executive strategies applied in the programme itself and the organizational managerial practices related to the programme. Moreover, the survey did not capture the addressees' perceptions satisfactorily. Further, the survey made no distinction between the two different EBPs, which caused confusion among the respondents and also hampered making interpretations from the data. Despite this, the internal consistency of the usefulness question panel was satisfied as the Cronbach's alpha was 0.869 (Study I). For Study II, the survey was augmented by an additional panel of questions intended to elicit in more detail the programme addressees' perceptions of the relative advantage, compatibility and ease of use of the implemented EBPs (intervention characteristics scale, ICS). The new question panel was adapted from a previously validated questionnaire applied in an implementation initiative within the field of information technology (Chin & Gopal, 1995). Validation in advance of the Finnish translation of the ICS and testing it in the context of health care was not possible due to lack of a suitable sample separate from the ODP addressees. However, the ICS worked well in capturing the addressees' perceptions of the qualities of interest. Also, its internal consistency was good as the Cronbach's alphas were 0.954 for one and 0.928 for the other EBP. It also clearly formed two specific factors for the two EBPs allowing them to be separately examined. The ICS turned out to be appropriate for the purpose but measured only three qualities. Cook's et al. (2015) PCIS comprises nine

qualities also including those covered by the ICS. Moreover, the PCIS has been created and validated within health care. The PCIS is thus recommended for use when in need of a scale to measure the perceived characteristics of an intervention within a health care setting, but a Finnish version is likely lacking.

10.3.3 Credibility of the qualitative findings

Interviews were used in two studies. In Study III, the interview played a limited role as one of the three probes investigating the participation activity in the case consultations groups. Study IV was based explicitly on focus group interviews to explore the managerial and executive processes regarding the ODP. The interviews in both studies were semi-structured. The interview protocols were constructed to elicit clearly expressed information of interest that would be easy to capture by taking notes. Moorley and Cathala (2019) provided a panel of useful terms and their definitions for appraising qualitative research: credibility, confirmability, member checking, rigour, reflexivity, triangulation, trustworthiness, transferability. These qualities form an open system of reciprocal interactions and connections to the rest of a specific study environment, for example quantitative data from the same study may confirm or contradict the qualitative findings and vice versa.

In the case of the ODP implementation research, the researchers had to pay careful attention to reflexivity to ensure credibility. The researchers had various roles regarding the ODP and various formal statuses in relation to the ODP administering organization and each other (see in more detail Study IV: Additional file 1_The authors' professional relations to the ODP, the organization and each other). The main researcher (the present author) had no role in designing the ODP or as a member of the programme staff but had a close formal linkage with the principal designer of the ODP. He was employed as a grassroots clinician in the ODP administering organization. The risks of biases associated with these relations were controlled for by several conversations about the risks, the careful definition of roles in each study and adhering to rigorous study protocols. Study IV was the most susceptible to these relational biases. To combat these risks, a rigorous scientific approach was adhered to. The interview protocol of the first round of interviews drew on an existing panel of questions, the Socratic Approach for Health Technology Assessment (Hofmann et al., 2014). The second interview protocol was built by the principle of requesting the clinical head of the ODP administering organization and the programme staff to make reflexive appraisals of the data

obtained during the first round of interviews. The analysis of the raw data was performed deductively against on a theoretical frame, NPT (May et al., 2015).

Neither the interviews of Study III nor IV were transliterated verbatim. The data was collected by taking notes. The separate interviews with two informants in Study III were conducted by phone, were short and the questions focused on eliciting explicit information on limited topics. One of the two informants was engaged as co-author with appraisal of the findings, which also served also as a confirmation of the interview. The interviews in Study IV were videorecorded and the notes were checked afterwards. Three separate focus group interviews were conducted: two rounds with FG1 and one round with FG2. The notes were written in the form of reports a few days after each interview session. The reports were subjected to member check for feedback by each participant of the respective interview. In addition, the final results derived deductively from the raw data were subjected to member check by members of FG1 which involved those responsible for the ODP. Verbatim transliteration would have been the traditional way of forming the raw data. However, it would have taken much more time and thus inhibited the fast cycle of iterations and adherence to the reflexive interview protocol. In addition, no resources were available for transliteration. To combat the risks associated with omitting verbatim transliteration, an alternative robust protocol was deployed, namely the video recordings of the interviews, concurrent note taking, journalizing immediately post-interviews, preliminary content analysis and iterative member checking. This approach was in line with the method Halcomb and Davidson (2006) have described.

Triangulation was used in Study III to examine the participation activity in case consultations and explore possible explanatory factors: a yes-no survey about the participation with the intended participants of the case consultations, checking the participant lists by the sessions and short interviews with those responsible for the case consultations.

The findings of Study IV were used to explain and enhance the understanding of the findings of Studies II and III, which can be deemed triangulation between the studies.

Rigorous scientific approach, member check and triangulation were applied to ensure the confirmability and credibility of the present qualitative results. Some bias may still occur. In spite of overt recurrent consultations at every step, the main researcher selected the theoretical approaches, frameworks etc. and is principally responsible for building up the interview protocols, analysing frames and performing the analyses. The co-researchers approved each step and the final results and are

involved in making the interpretations. During the analysis processes the results achieved a higher conceptual level promoting their transferability beyond the immediate study environment. Ultimately, each reader must make her own individual judgement on the credibility and applicability of the present results.

11 CONCLUSIONS AND IMPLICATIONS

This thesis concerns top-down style programmes for implementing EBPs in the context of health care. The programme administrators cannot rely on possible initial enthusiasm among the intended end users of the intended EBP, although this may be taken as an encouraging phenomenon. All key stakeholders must be invited to join in the collaboration at an early phase of conceiving a programme to ensure achieving and maintaining a receptive climate during the programme throughout. The collaboration should follow the principles of *what, how* and *who* to achieve a shared understanding about the programme. All details regarding the programme should be checked to ensure that they are congruent with what has been decided together about the priority of different aims loaded on it. The chosen balance between the primary and possible other aims is suggested to be adhered to rigorously throughout the programme to ensure the perceived justification of the programme among all stakeholders. Indeed, flexibility in running a programme is also important but the possible changes of priorities or other central aspects should be made together. Such an approach would likely reduce the risk of misunderstandings and rejection.

The creation of a programme plan should rely on some appropriate and comprehensive theory-based models or frameworks in addition to local knowledge. The TMFs selected should advise the designers and executives to include strategies for A) the initial implementation of the intended EBP, B) stabilizing its delivery in everyday work and C) integrating it into stable organizational structures to ensure its sustainable delivery also after the closure of the programme.

The present studies showed that the ODP training intervention provides a feasible base for reproduction, yet with some structural adjustments. The clearly positive aspect was that with only a one-day workshop for each complex psychosocial intervention about a third of the trainees were able to start applying them in their everyday work. Indeed, a third was less than could had been expected. Also, most of them applied the implemented EBPs with fewer patients than could have been expected given their regular clientele. A substantial part of the participating therapists expressed a need for more thorough training and locally available low-threshold clinical support in applying the EBPs. About half of the

participating therapists participated in the case consultations and the other half did not. The implementation outcomes were weaker than expected. The programme- and organization-related factors seem to explain the results more likely than the staff- and EBP-related factors. To reinforce, scale up and sustain the delivery of the intended psychosocial interventions, four proposals, of which two were critical, emerged from the present studies.

First the less critical suggestions. First, merging the workshops and case consultations as a one training entity. Participation in a specific number of case consultations should be mandatory for completion of the training. Of course, the training intervention as a whole must be adapted according to the characteristics of each intended EBP. Second, peer facilitation. Training and nominating separate local facilitators could serve as a feasible strategy for providing the needed low-threshold clinical support during everyday work. A part of the programme champions or early adopters may be keen to assume the role of formal facilitators.

The two critical issues were the minor attention paid on the role of team leaders or clinical supervisors and the total lack of sustainability strategies in the programme plan. A separate strategy for committing the team leaders to the programme right from the stage of first outlining what and why something should be done differently from before is many times the prerequisite for their buy-in. This is also connected to the second critical issue, namely the sustainability of the intended EBPs at the organizational level is usually dependent on the attitudes and actions of the team leaders. The other critical sustainability strategy is to develop permanent organizational policies and capacity to ensure the reproduction of the introduced EBPs despite staff turnover and other possible situations causing instability.

Summing up still as list the proposals concluded above, the following additions might have been of use in the case of the ODP:

- early collaboration with all key stakeholders while conceiving the ODP programme plan,
- participation in a specific number of the case consultations should have been mandatory for completion of training in the BA and MI,
- a separate strategy for engaging the team leaders to sponsor the ODP systematically and more effectively among their teams,
- a separate strategy for further reinforce the performance of programme champions and their role among their peers, e.g. training and nominating part of them as formal local facilitators,
- a separate strategy for combatting the detrimental effect of staff, turnover during and after the end of the ODP, e.g. a permanent policy

and capacity for training new coming staff in the implemented EBPs, and

- the collaborative elaboration of other possible strategies ensuring the survival of the desired programme outcomes.

The pursuit of increasing EBPs is an ongoing process and pertains to a wide range of EBPs across a health care organization. Consequently, the focus should be not only on individual EBPs, but also on the organization's structures or capacity and management systems with equal effort. The aim is for management systems and implementation strategies also to be evidence-based. Within implementation and management sciences, there are currently available several evidence-based theories, models and frameworks or other instruments for the purpose. Applying them together with local knowledge is highly recommended.

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PUBLICATIONS

PUBLICATION I

Early Assessment of Implementing Evidence-Based Brief Therapy Interventions Among Secondary Service Psychiatric Therapists

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Early assessment of implementing evidence-based brief therapy interventions among secondary service psychiatric therapists☆

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ABSTRACT

This implementation study was part of the Ostrobothnia Depression Study, in Finland, which covered implementation of motivational interviewing (MI) and behavioral activation (BA) within regional public psychiatric secondary care. It aimed to evaluate the mid-term progress of implementation and related factors. Altogether, 80 therapists had been educated through the implementation program by the point of the mid-term evaluation. Eligible information for evaluation was gathered using two questionnaires (q1, q2) with a one-year interval.

A total of 45 of the 80 therapists completed q1, 30 completed q2, and 24 completed both questionnaires. Professional education was the only background factor associated with adopting the interventions (q1: $p = 0.059$, q2: $p = 0.023$), with higher education indicating greater activity. On the basis of trends such as changes in overall usefulness score from q1 to q2, the most involved therapists were slightly more likely to adopt MI/BA. Our experience so far suggests that encouraging staff to begin using new interventions during education is very important. The Consolidated Framework for Implementation Research was found to be a useful tool for constructing the evaluation.

1. Introduction

More systematic use of evidence-based, time-limited psychosocial interventions in psychiatric care would achieve more prompt and sufficient symptom relief for a significant proportion of patients compared with typical treatment or long-term psychotherapies (Cuijpers, Anderson, Donker, & van Straten, 2011; Knekt et al., 2011). Increased use of evidence-based, time-limited psychosocial interventions could also lead to smoother patient flow management. However, the implementation of new psychosocial interventions has proven challenging, and, in general, some estimates indicate that approximately 40% of organizational efforts for implementing new methods in health care yield satisfying results (Damschroder et al., 2009). The obstacles for implementation can emerge at different levels: the healthcare system, the practice environment, the educational environment, the social environment, the political environment, the practitioners, and patient-related levels (Damschroder et al., 2009; Haines, Kuruvilla, & Borchert, 2004). The crucial facilitating or inhibitory factors that have been identified at organizational level are support from the leaders and attitudes of the workers about their own need for training and the training program (Anderson, 2009; Brunette et al., 2008; Haines et al., 2004; Moser, DeLuca, Bond, & Rollins, 2004; Steinfeld, Coffman, & Keyes, 2009). There are earlier studies and reviews about the influence of work experience or the level of therapy training on adopting new psychosocial interventions, and the results show that therapists with more previous supervision are less prone to change (Beidas & Kendall, 2010). Having worked for longer seems to have some negative effects on openness to change (Anderson, 2009; Beidas & Kendall, 2010). The different findings from studies of implementation of evidence-based practices are generally due to differences between study or program designs and outcome variables used. These include, for example, varied outcomes in preserving acquired therapeutic skills and lack of consensus about how therapist-related variables influence the adoption of new practices (Beidas & Kendall, 2010; Herschell, Kolko, Baumann, & Davis, 2010). An integrated view of the antecedents influencing implementation is best reached by taking account of a wide

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range of system-contextual factors, such as therapist- and client-related variables, organizational support, and quality of the training program (Beidas & Kendall, 2010; Herschell et al., 2010). There is still a need for studies on the implementation of psychotherapy interventions that take into account professional training background and perceived needs for training (Beidas & Kendall, 2010; Herschell et al., 2010; Prytys, Garety, Jolley, Onwumere, & Craig, 2011). Damschroder et al. (2009) introduced an integrative implementation theory known as the Consolidated Framework for Implementation Research (CFIR). The CFIR is a synthesis of many previous implementation theories and it can be used to plan implementation processes or to assess the level of success of a committed implementation by providing a range of system-contextual viewpoints for evaluating its results.

The aims of this study were 1. to explore staff-related factors (professional background, level of experience in applying previous training, perceived need for new methods) associated with participating in a work development program, 2. to evaluate the perceived usefulness of the implemented brief therapy interventions during the early stages of a treatment developing ODS program within public secondary psychiatric services (specialized care provided by district hospitals), and 3. to test the psychometric properties of a questionnaire developed for this study to assess implementation usefulness.

2. Methods

This implementation study was part of the Ostrobothnia Depression Study (ODS). The population of the catchment area is 200,000, and the aim of the ODS is to develop a systematic model of assessment and treatment of depression and other non-psychotic disorders with regional coverage. The goals of the ODS program are rapidly identifying and treating mood and anxiety disorders, as well as complicating alcohol disorders, quickly recognizing complicated cases, and diminishing the number of extended treatments to facilitate patient flow. Depressed patients were used as a benchmarking group, with the goal of recruiting 200 study patients in total, including 100 patients with co-morbid substance use disorders. The program interventions chosen were behavioral activation (BA) for treatment of depression and motivational interviews (MI) for substance misuse. These interventions were used because there is evidence of their effectiveness on a meta-analytic level (Cuijpers, van Straten, & Warmerdam, 2007; Lundahl & Burke, 2009), and they are also time-limited. We also considered that both interventions could be taught to a large number of therapists in a reasonable time. Running the developing ODS program was managed and supported by psychiatric secondary care unit administrative staff. The implementation branch of the study aimed to evaluate the success in coverage of application of the implemented evidence-based interventions. According to the policy activities that constitute research in the South Ostrobothnia Hospital District, this work met the criteria for operational improvement activities exempt from ethics review.

2.1. Setting and sample

Employees in five selected units of the local hospital district were invited to participate in the study, and individual employees made the final decision about their participation. Four of the selected units were outpatient care units, and one was an 18-bed acute inpatient ward (one of the five acute wards for adults in the hospital district). The outpatient care units included in the study cover a population of 124,000 (62% of the population of Southern Ostrobothnia).

From spring 2009 to spring 2012, 80 therapists were educated to participate in the ODS. The elements included in this education are presented in Inline Supplementary Table 1. The majority of the staff receiving this education were registered psychiatric nurses, but the participating staff also included psychiatric practical nurses, psychologists, and doctors. The present study excluded doctors because they focused on diagnosis and drug treatment in the ODS program and did not participate in the practice of psychosocial intervention.

The implementation study plan was introduced to staff in participating units through an invitation letter. This was emailed personally to all intended participants at the beginning of the recruitment phase of the clinical study. The study survey collection was indicated in the agenda of the refresher seminars. The questionnaires were collected anonymously, with a personal study number saved for each respondent. A prompt letter including the questionnaire forms was sent to seminar non-attenders via the research nurse after each survey.

2.2. Questionnaire and data collection

Beginning nearly one year after beginning of the educational ODS program described above, the staff members participating in the ODS program were asked to complete a questionnaire (q1). These staff members were asked to complete the same questionnaire following a one-year interval (q2). The questionnaire assessed the participating therapists' background information (level of education, working years, and previous training in psychotherapy) as well as their level of practice using psychotherapy skills acquired through previous training and perceived need for new working methods (as indicators of employees' attitudes). The therapists' activity in using the treatment methods covered in the ODS program was assessed using the number of the patients they reported had been treated with BA and MI. The perceived usefulness of these methods was assessed with a separate 7-item questionnaire developed for this study (included questions are presented in Inline Supplementary Table 2). In this questionnaire, questions 1 and 2 evaluated the therapists' experiences with learning the methods and their adaptability, which form the basis of implementation (Damschroder et al., 2009). Question 3 was originally included based on the knowledge that an individual's attitude and prediction of future behavior are linked (Kraus, 1995). A reassessment of question 3 aimed at following the changes over time in the therapists' attitudes toward the future use of the new interventions. Questions 4–7 were included based on common factors of psychotherapy that have been found to be associated with therapy outcome (Baldwin, Wampold, & Imel, 2007; Lambert, 2005; Snyder, 1995).

2.3. Participants' characteristics

The vocational education of the participants of this implementation study is presented in Table 1.

The work experience of the participants was <2 years for three, 2–5 years for six, 5–10 years for nine, and >10 years for 27 of the respondents. For analysis, these groups were dichotomized, as work experience ≤ 10 years and >10 years. The sample included nine people who had additional psychotherapist training (or were currently on a training course lasting at least 2 years), and six were family therapists. The majority of non-psychotherapists had previously participated in shorter education programs on psychosocial interventions.

2.4. Statistical methods

The number of patients treated using BA or MI was used as a variable gauging therapist activity. The separate items, the sum of scores for q1 and q2, and the change in scores from the first to

Table 1
Participants' vocational education, questionnaire 1 (q1) and questionnaire 2 (q2).

Professional role	Completed q1[a]	Completed q2[a]	Completed both q1 and q2	Initiated use of MI and BA by the time of q1
Psychologist	3 (6.7%)	3 (10.0%)	3 (12.5%)	3 (8.8%)
Registered psychiatric nurse	32[b] (71.1%)	22 (73.3%)	18 (75.0%)	26 (76.5%)
Practical psychiatric nurse	10 (22.2%)	5 (16.7%)	3 (12.5%)	5 (14.7%)
All	45 (100%)	30 (100%)	24 (100%)	34 (100%)

[a] There was no difference in distribution of education level by questionnaire (q1 and q2).
[b] This number includes two cases with missing information.

second questionnaire on the 7-item usefulness questionnaire (see Inline Supplementary Table 2) of the ODS treatment model were included as variables assessing the usefulness of the treatment model. Work experience and former education (professional background) were also included as explanatory factors. For the analyses, psychologists and nurses were pooled. In addition, the associations between the number of treated patients and the questions on attitudes related to the therapy training were examined separately.

Attitudes and usefulness were measured on 6-point Likert scales. For the analyses, the ratings for each item were dichotomized as positive or negative. Cronbach's alpha with inter-item correlation coefficients was calculated for the 7-item usefulness scale, the sum of which was used as the usefulness measure for BA and MI methods. The differences between subgroups were calculated with *t*-tests and with non-parametric tests (the Wilcoxon test and the Mann–Whitney *U* test). The limit of statistical significance was set at $p < 0.05$. All analyses were performed with SPSS statistical software, version 19.0 (IBM Corp., Armonk, NY, USA).

3. Results

Practically all questionnaires were filled in at the refresher seminars, and the prompt letters resulted in a further two responses from non-attenders. The distribution of items in questionnaires 1 and 2 are shown in Table 2. Of the 45 therapists who completed q1, 34 had begun using MI/BA. Using these interventions, 29 had treated 1–10 patients and 5 had treated >10 patients (including both study and non-study patients). For the 24 therapists who also responded to q2, eight had used these interventions to treat 1–10 patients and 16 had used them to treat >10 patients. In terms of work experience, there was no difference in the total number of patients (including both study patients enrolled in the outcome study of the ODS program and non-study patients treated outside the study) treated with MI/BA methods between the groups with 10 years or less (q1: $n = 18$, q2: $n = 19$) or more than 10 years (q1: $n = 25$, q2: $n = 10$) of work experience (q1: $p = 0.37$, q2: $p = 0.87$, Mann–Whitney *U* test). The numbers of study patients at the time of q1 and q2 were compared between the groups with different levels of education (psychologists and nurses: $n = 33$ vs. practical nurses: $n = 10$ in q1, and $n = 24$ vs. $n = 5$ in q2). The result was close to significance in q1 and significant in q2 (q1: $p = 0.059$ and q2: $p = 0.023$, Mann–Whitney *U* test). In q1, a similar, but a non-significant ($p = 0.10$) difference was observed between the educational level groups in treating non-study patients; the therapists with higher education were more active in starting to use the new interventions.

Reported use of previously acquired therapy skills was taken into account in sub-group comparisons of the numbers of study patients treated at the time of q1 (sub-groups: therapy skills used at most "sometimes" $n = 19$ vs. at least "quite often" $n = 24$). We also compared the sub-groups with different levels of perceived need for training in new approaches (sub-groups: need for training at most "sometimes" $n = 17$ vs. at least "quite often" $n = 26$). No differences were found in either comparison.

The average of sum score on the seven usefulness questions was 28.5 (range: 17.0–43.0, SD: 5.4) in q1 and 28.7 (range: 22.0–39.0, SD: 4.3) in q2. In the group responding to both q1 and q2 ($n = 24$) the average of the difference of sum scores from q1 to q2 was −0.2 (range: −11.0–9.0, SD: 4.9; *p* for mean difference q1 vs. q2 = 0.883, *t*-test). In comparisons of change in individual usefulness questions from q1 to q2, the only significant change indicated a strengthening of the perceived embracing of BA ($p = 0.016$, Wilcoxon test). The reliability of the seven usefulness items (see Inline Supplementary Table 2) was 0.869 (Cronbach's alpha), and the range of inter-item correlations was 0.250–0.702.

The change of the sum score of the usefulness questions from q1 to q2 was compared between the therapists who had treated only non-study patients ($n = 6$) and those who had also treated study

Table 2
Characteristics of the study sample.

Item	Questionnaire 1 ($n = 43$)		Questionnaire 2 ($n = 30$)	
	Median	IQR	Median	IQR
Number of study patients[a]	1.0	2.0	4.0	4.0
The use of earlier psychotherapy training (1–6, 1 = never, 6 = very often)	4.0	2.0	4.0	2.0
Perceived need for additional training (1 = not at all, 6 = very often)	4.0	2.0	3.5	1.3
	Mean	SD	Mean	SD
Seven-item usefulness scale[b] (0–42 points)[c]	28.5	5.4	28.7	4.3
1. Embracing BA (0–6)	2.73	0.76	3.23	1.01
2. Embracing MI (0–6)	3.39	1.12	3.60	1.19
3. Future use (0–6)	3.88	0.99	3.87	0.94
4. Mastering process (0–6)	5.12	1.25	5.17	0.95
5. Tool box (0–6)	3.71	0.94	3.40	0.93
6. Empathy (0–6)	4.47	1.19	4.30	0.87
7. Hopefulness (0–6)	5.32	0.88	5.10	0.80

[a] Number of enrolled outcome study patients treated.
[b] See description of separate items in Inline Supplementary Table 2.
[c] This section was answered by therapists who had begun to use MI/BA, at time of questionnaire 1 $n = 34$, and at time of questionnaire 2 $n = 30$.

patients ($n = 18$). There was a trend level difference, with a more positive change in perceived usefulness among those who had treated study patients than among those who had not ($p = 0.075$, Mann–Whitney U test). The change of embracing BA and MI methods from q1 to q2 was evaluated by perceived need for training in new approaches (at most "sometimes" $n = 8$ vs. at least "quite often" $n = 16$). Embracing MI was significantly more positive among those who perceived less need for training in new approaches than among those who perceived more need for training ($p = 0.045$, Mann–Whitney U-test). Embracing BA did not differ between the groups ($p = 0.29$, Mann–Whitney U test). The number of study patients did not differ between the groups (q1: $p = 0.88$, q2: $p = 0.30$, Mann–Whitney U test).

The sum of usefulness scores on q1 and q2, as well as the change in sum scores between the two questionnaires were compared by therapists' professional background (work experience, level of education, use of previous training in therapy skills, and perceived need for additional training). The sum score in q1 was higher in the group with greater perceived need for training in new approaches (at most "sometimes" $n = 13$ vs. at least "quite often" $n = 20$) ($p = 0.015$, Mann–Whitney U test), but the other profession-related variables were not associated with the usefulness scores or the changes in these.

4. Discussion

The aims of this study were to evaluate the involvement activity and related background factors of psychiatric therapists in a treatment development ODS program initiated by their employer. We also assessed the perceived usefulness of psychosocial interventions in the ODS program and evaluated the validity of the questionnaire designed for this study. Level of education was the only aspect of therapists' background associated with involvement activity in the early stage of the development ODS program. As previous studies have shown contradictory results on the effects of different therapist-related variables, such as work experience or vocational education, we thought it was important to take these into account. Therapists with higher education were more active in beginning to use the new interventions. Notably, the length of work experience and the use of previous training in therapy skills or the perceived need for additional training in new methods were not associated with involvement activity. Descriptive analyses revealed that most of the participants had received some additional training for psychotherapy after their vocational education. This information was not taken into account when analysing the program involvement activity, however, because of the small size of the subgroups among the survey respondents. The background information about earlier psychotherapy training was used to improve the adjustment of the content of the intervention training, e.g. the majority of participants had some earlier experience of MI training, but only a few in BA methods. Self-assessed embracing of MI strengthened slightly amongst those therapists who reported a lower need for new therapy approaches in the beginning, whereas no such change was seen in the group who a reported higher need for new therapy approaches. A similar association was detected when assessing the perceived overall usefulness of the new interventions. The self-assessed embracing of BA strengthened significantly with time amongst the whole group, and none of the examined background factors was significant in explaining this finding. The positive experience of using new interventions was associated with using these with patients in the outcome study, indicating that the activity of being a promoter provided a positive usefulness experience. The reliability and psychometric properties of the 7-item usefulness questionnaire (see Inline Supplementary Table 2) appeared satisfactory.

Fluttert, van Meijel, Nijman, Bjørkly, & Grypdonk (2010) studied the implementation of the "Early Recognition Method" in 16 forensic psychiatric wards using a study procedure and data collection method quite similar to those used in this assessment of the ODS. As we found in the ODS program, they found that work experience was a non-significant factor for involvement activity. However, education was not associated with involvement activity in the study by Fluttert and colleagues, whereas we did find an association. The sample used by Fluttert et al. (2010) was twice as large as the one used in our study. Moreover, in their sample, the educational subgroups were equal in size, so their non-significant finding for level of education may be of higher relevance than our finding.

Anderson (2009) has completed a Cochrane review on the implementation of substance use disorder interventions for general health care practitioners. Our finding that work experience did not affect implementation amongst nursing staff differs from Anderson's finding that less experienced trainee general practitioners were more prone to embrace the interventions offered than were trained general practitioners, whose approaches to work were presumably more routinized. The different, even contrary, results may be explained by differences in study settings and samples. When analysing the results, we needed to apply a more comprehensive implementation theory to explain the findings better. Our original theoretical viewpoint was solely limited to therapist- and training intervention-related variables. The CFIR acknowledges that a diverse collection of factors affects the implementation of treatment methods. This fact should lead to careful multifaceted upfront planning and retrospective analyses of development programs.

The ODS program was devised to fill the negative gap between patient flow and treatment resources. The ODS program was intended to diminish the gap by offering evidence-based interventions (MI and BA), which would help therapists to identify the key points of the patients' problems for focusing the treatment, as called for by Drake et al. (2001). Successful implementation is usually based on experience of relative advantage compared with earlier ways of working (Damschroder et al., 2009; Chin & Gopal, 1995). Comparing trainee and trained cognitive behavior therapy (CBT) therapists' treatment outcomes, Forand, Evans, Haglin, and Fishman (2011) found that therapists in training could offer effective CBT, but more experienced therapists had better outcomes when treating patients who were more severely ill. Offering effective treatment allows the therapist to perceive the relative advantage associated with the new approach and encourages the trainee to continue to pursue the approach. This is in line with our finding that attitudes progressed positively among the most actively involved therapists. The items on our usefulness questionnaire were formulated to explore factors (perceived better state of empathy, hopefulness, etc.) that implicitly characterized the relative advantage of the new methods (see Inline Supplementary Table 2).

At this early state of the implementation, modest positive change in the experience of applying the treatment model was found, but, surprisingly, perceived relative advantage was not associated with the practical activity of using MI and BA. The questionnaire was designed to correspond to different aspects of relative advantage of the new approaches, but it is possible that this ambition has not been accurately reached. From their implementation study, Moser et al. (2004) concluded that program planners often underestimate the amount of time necessary to achieve wide range implementation of a new practice. For these reasons, we believe that the mid-term survey will facilitate the final evaluation of this program and planning of possible future programs. These results will be analyzed and reported in separate papers.

The observed differences in reported usefulness sum scores and the adoption of MI by perceived need for new approaches

could mean that therapists with lower needs at the beginning of the study perceived MI to provide a new and more effective intervention to treat patients with substance abuse disorder, and this may be why they were increasingly encouraged over time. Therapists with higher needs at the beginning of the study might have had overly high expectations about the possibilities of MI, and their views might have become more realistic over time. This possibility could not be verified on the basis of these study results, but the theory about prerequisite relative advantage may explain this phenomenon and thereby support this idea (Damschroder et al., 2009). This finding might also be at least partly explained by the phenomenon of regression to the mean, which would diminish the relevance of this conception (Morton & Torgerson, 2005).

Our finding that the most involved therapists had a trend level positive experience regarding MI/BA interventions is in line with the conclusion of the study "Learning by Doing Something Else," where task variation with the possibility to interrelate previous and new know-how proved to enhance learning (Schilling, Vidal, Ployhart, & Marangoni, 2003). The ODS program was expected to enrich the active toolbox of doing therapy, offering new methods with a high probability of filling this criterion.

This study has several features of developmental work research, and, at the same time, the ODS program was imported from the top down (Engeström, 2000). The ODS program was based on knowledge of a gap between supply and demand of psychiatric care, and the studies that usage of evidence-based practices with wide coverage may, to some degree, ameliorate this discrepancy (Cuijpers et al., 2011; Knekt et al., 2011). Owing to the motivation, planning, and coverage of the ODS program, the approach and design of education were decided at high levels of the organization through a top-down design. However, participation in certain workgroups, the final realization of the ODS program, was decided within each unit. The basic idea was that employers share the prospect of the gap and, especially, welcome offered solutions (i.e., the ODS project). The relatively small activity of answering the first two implementation study questionnaires did not allow a careful observation of the coverage of applying implemented interventions, and the attitudes of a significant proportion of staff members on these issues therefore remain unclear. According to Engeström (2000), developments imported from above do not work in hospital settings. As an alternative, he suggested the principles of developmental work research, including involving employees in noticing, formulating, and solving the problem within a given frame. It is possible that these criteria were not completely fulfilled for a variety of reasons.

In conducting an evaluation, the CFIR provides a multifaceted framework to analyze the structure and process of the ODS program (Damschroder et al., 2009). The five workgroups participating in the ODS program represent five different micro cultures. Critical viewpoints have been expressed regarding the ODS program alongside the enthusiastic participation. The criticism we found has motivated us to form some additional helpful questions about the implementation process in accordance with the domains and their subdivisions in the CFIR, to be taken into account in the final assessment (see Inline Supplementary Table 3).

As the scope of this implementation study is a continually developing program, the mid-term assessment also provides the opportunity to evaluate the quality of study methods used so far. At this stage of the ODS program, we became aware of the need to collect data based on a more comprehensive theoretical viewpoint, and also with a more sensitive tool to assess relative advantage. As this paper focuses solely on single-user experience, the focus at the final phase of the ODS program study has been broadened by whole-team questionnaires, which cover the organizational factors facilitating and inhibiting the success of implementation. Group interviews of the program task force, organizational administrative management and team leaders, are currently underway, as a qualitative process based on a modified Rapid Assessment Process (Beebe, 2005) and revised Socratic approach for health technology assessment (Hofmann, Droste, Oortwijn, Cleemput, & Sacchini, 2014). All of the additional data will be collected during the spring of 2015 and reported in two separate papers.

4.1. Limitations

The proportion of therapists who completed both of the first two questionnaires is relatively small, and this may bias the results. The lower education level group (practical psychiatric nurses) was small and had more dropouts than the group with higher education. A higher proportion of practical psychiatric nurses' work may be outside individual therapy (e.g., group therapy), compared with the group with higher education. This may impair practical psychiatric nurses' activity for adopting new approaches designed for individual therapy and for participating in this kind of study. Job descriptions were not checked, so we could not verify this hypothesis. The small-sized subgroups limited the use of statistical methods and diminished the statistical power of the observations. Multiple statistical methods were applied according to the varied sizes of the subgroups.

The study questionnaires were collected anonymously to maximize the participation rate. It was therefore not possible to compare attenders and non-attenders afterwards, as non-attenders can be regarded as having declined to participate. No further conclusions can be made on the representativeness of the survey sample to the broader group. The non-attenders were sent questionnaires after each refresher seminar but this resulted in only a few responses. The most likely reason for non-attendance is the practical difficulties of staff in a single unit participating in the same educational sessions. This detail was not taken into account at the study planning phase.

The survey collection took place in specific educational seminars. Those who attended therefore received more information and training in the intervention, although the materials from the refresher seminars were also available to non-attenders. This could have some impact on the knowledge and practical skills of those who attended, which will limit the generalizability of the results in the full group trained in the intervention. This report includes results up until the mid-term of the program, and the findings of the final phase will be analyzed and reported later.

Self-report surveys, as were used in this study, may produce biased responses that overestimate therapeutic competence and activity (Perepletchikova & Kazdin, 2005; Brosan, Reynolds, & Moore, 2008). Perepletchikova & Kazdin (2005) recommended the use of direct tools (videotaping, observations) for assessment of treatment integrity instead of indirect assessment (e.g. therapist self-reporting). However, in large scale developing programs like ODS, self-report scales offer a practical alternative for data collection within the available resources. To maximize the validity of the survey, we used test-retest data collection and performed corresponding analyses. The use of direct assessments might have resulted in even higher drop-out rates in the sample.

5. Conclusion

Evaluated approximately halfway to completion of the ODS program, the most involved therapists, and possibly those who have perceived the relative advantage associated with the new intervention showed slightly positive indications for adopting MI/BA. More appropriate instruments should be developed to uncover perceptions of the relative advantage of new interventions. Encouraging staff members with diverse means to begin using new approaches as soon as possible after completing the education

program is of primary importance. Careful emphasis should be given to formulating the motivations and goals of the program and, furthermore, to finding advanced ways to serve the staff experience of co-creation. The effects of and relationships between factors affecting an implementation process are more complex than launchers of a development program can generally imagine at the outset of the program. An advanced pre-analysis of the implementation environment following a comprehensive implementation theory (e.g. CFIR), followed by the adaptation of a program based on this analysis, may contribute to success and help in the evaluation and then the development of the program.

6. Lessons Learned

As the goal of the project was to achieve pervasive coverage of new practices, the main research hypotheses were quite easy to formulate. The structure of the research questionnaires could be developed in a relatively short period of time based on clinical, educational and developmental working experience in the project team. As the project progressed, the therapeutical alliance-focused background appeared to be too narrow. At this stage, the literature search identified several possible theories for this kind of research, and CFIR was selected owing to its comprehensiveness. The evaluation of the study design and the mid-term results using the CFIR suggested that the study design should also include an organizational viewpoint, which was therefore added.

Lesson one. When starting to plan a development project, it is important to identify a valid implementation theory, read it thoroughly and compare your own ideas with it. It is human nature to be over-optimistic about one's own expertise and ideas (Kahneman, 2011).

The challenge in this project was to implement a new clinical model with wide regional coverage for examining and treating patients. Each regional services team is a self-supporting unit with a unique micro-culture. The most crucial aspect to be taken into account in the ODS was therefore sensitivity to the implementation climate amongst the staff, ensuring engagement of the team leaders and identifying program champions from the teams (Damschroder et al., 2009).

Lesson two. In future projects, it would be helpful to take time to evolve a specific strategy for engaging team leaders, ascertaining their level of knowledge and their willingness and ability to support their teams in everyday matters about the development program. Again, it is human nature to hold onto one's familiar practices despite their possible demerits, and to change slowly (Kahneman, 2011). At the mid-term of the program, a more comprehensive background theory (CFIR) led us to plan and create specific questionnaires to assess team leaders' opinions and attitudes on targets and practices in the developing programs.

All participants in the refresher seminars organized by the project filled in the questionnaires. At best, about 50% of trained staff participated in these seminar days. After each seminar day, the questionnaires were also sent to those who had not participated, resulting in only a few responses. The number of returned forms remained disappointingly low, affecting the relevance of results.

Lesson three. To achieve a more comprehensive result, one option would have been to ask staff to fill in the questionnaires during the teams' normal weekly meetings. It would also have been helpful for a researcher to be available while staff were completing the questionnaires.

Disclaimer

The study sponsor had no role in the study design, collection, analysis, or interpretation of the data, or any other contribution.

Competing interests

All authors declare that they have no competing interests related to this particular study.

Ethics approval

According to the principles agreed in the South Ostrobothnia Hospital District, this implementation study of the ODS program is exempt from ethics approval on the basis of the work being primarily intended to improve regional care using evidence-based practices and staff as study objects. Answering the questionnaires was voluntary and participants were informed of the aim of the questionnaires and that the data would be analyzed anonymously. The local ethics committee has approved the outcome study of ODS program.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.evalprogplan.2015.05.004.

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Inline Supplementary Table 1. The implementation procedure

The Elements of Education
Implemented treatment interventions • Behavior activation (BA) • Motivational interviewing (MI)
Trainers, both trained cognitive behavior therapists • Psychiatrist • Authorized psychologist
Basic education • One day for each method, comprising lectures, simulated practice, and written descriptions of the topic
Further education • Clinical supervision using case examples was offered in groups once per month • Staff of the participating units were invited for half-day seminars twice per year • Educational videos about the BA and MI were available on the employer's intranet website
Additional support • An assisting nurse visited weekly and posted information letters monthly to the participating units

Inline Supplementary Table 2. Questionnaire items on the usefulness of the education.

Title	Item
1. Embracing BA	At what level have you noticed that you have embraced behavior activation (BA)?
2. Embracing MI	At what level have you noticed you have embraced motivational interviewing (MI)?
3. Future use	At what level do you predict you will use BA and/or MI after the end of the ODS[a] patient intake period?
4. Mastering process	At what level have you noticed that BA and/or MI affect your ability to master the therapeutic process? (Confidence regarding the fluency and your expertise of the treatment.)
5. Tool box	At what level have you noticed that BA and/or MI diversify your possibilities to modify the therapy according the patient's needs? (Enriched tool box)
6. Empathy	At what level have you noticed that BA and/or MI affect the patient experience you provide as an empathic therapist?
7. Hopefulness	At what level have you noticed that BA and/or MI affect the atmosphere of hopefulness during the treatment?

[a] Ostrobothnia Depression Study

Note: A 6-point Likert scale was used to score for each item having the following descriptors for response alternatives:

Questions 1, 2 and 5: Not at all, slightly, modest, quite good, good, very good.

Question 3: Not at all, seldom, sometimes, quite often, often, very often.

Questions 4, 6 and 7: Obviously impair, moderately impair, slightly impair, slightly strengthen, moderately strengthen, obviously strengthen.

In addition, a separate neutral option was used for questions 4, 6, and 7.

Inline Supplementary Table 3. Supplementary questions based on the CFIR[a] that emerged as a reaction to the present results and feedback gained during interactive meetings with the participating staff.

A	Have those responsible for the ODS[b] program been aware of the apprehension among staff members about the ODS program's main goal? What has been at the forefront in marketing the ODS program to the participants: 1) Academic research or 2) improvement of care? 1) If research is the main idea perceived by the staff, they may feel that they are involuntarily acting as study assistants. Although some may be interested in being involved in an academic evaluation, this view cannot be taken as the default in the case of clinical workers. In developmental work research, both research and development are involved, but development should be the primary goal (Engeström, 2000). 2) If improvement of care seems to be the main goal as understood by the staff, will this evoke the idea that "my previous work has been assessed as invalid" or alternatively "I'm needed by my employer to reach our shared goal?"
B	Have the team leaders of every workgroup been engaged in the ODS program? Not only the supportive attitude of the team leaders, but also their way of operating to enable staff members to apply the new approaches, have a very important role in the implementation process (Brunette, Asher, Whitley, Lutz, Wieder et al., 2008).
C	Has there been a program driver in every workgroup? In our view, the ODS program has been well enough resourced and supported by project staff. Along with this, a successful implementation also requires the presence of promoters within the workgroups (Damschroder, Aron, Keith, Kirsh, Alexander & Lowery, 2009).

[a]Consolidated Framework for Implementation Research (Damschroder, Aron, Keith, Kirsh, Alexander & Lowery, 2009).

[b]Ostrobothnia Depression Study.

PUBLICATION II

What is important for the sustained implementation of evidence-based brief psychotherapy interventions in psychiatric care? A quantitative evaluation of a real-world programme

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What is Important for the Sustained Implementation of Evidence-Based Brief Psychotherapy Interventions in Psychiatric Care? A Quantitative Evaluation of a Real-World Programme.

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Abstract

Purpose: Behavioural activation and motivational interviewing, both evidence-based treatments (EBTs), were implemented in secondary psychiatric care. This longitudinal evaluation of a real-world programme focused on the penetration of EBT adoption and its associations with therapist-related and perceived intervention-related variables. The implementation plan was also compared to sub-processes of Normalization Process Theory.

Material and Methods: Six participating units employed 72 therapists regularly and they comprise the target group. Due to staff turnover, a total of 84 therapists were trained stepwise. Three survey points (q1, q2, q3) were set for a four-year cycle beginning a year after the initial training and completed 4-5 months after closing patient recruitment. The implementation plan included two workshop days, one for each EBT, and subsequent case consultation groups and other more general strategies.

Results: Fifty-seven (68%) of programme-trained therapists responded to one or more of three questionnaires. The self-reported penetration covers about a third of the target group a few months after the completion of the programme. Therapists' favourable perceptions of the EBTs regarding relative advantage, compatibility and complexity were associated with their sustained adoption. Therapists' background factors (e.g. work experience) and positive adoption intention at q1 did not predict the actual adoption of the EBTs at q3. No specific sustainment strategies were included in the implementation plan.

Conclusion: Brief but multi-faceted training with subsequent case consultations promoted the adoption of EBTs in a real-world setting. Adding specific sustainment strategies to the

implementation plan is proposed to ensure the long-term survival of the implementation outcomes.

Keywords: Brief psychotherapy, Evidence-based practice, Mental healthcare, Programme evaluation, Sustained implementation.

Introduction

Implementing evidence-based treatments (EBTs) in real-world health care settings and conducting their evaluations are both complex processes addressing open or changing systems (1–3). Implementation programmes entail solutions that are feasible and effective in achieving sustainable outcomes (4–7). Drawing on appropriate theories and frameworks such as Normalization Process Theory (NPT) and the Conceptual Framework of Implementation Outcomes facilitates balancing the process evaluation between scientific rigour and relevance (3,8,9). This serves to ensure applicability in informing future programmes.

NPT introduces three sub-processes – implementation, embedding and integration – through which an innovation, like an EBT, is put into practice, routinized and sustained over time among staff in an organization (3). All different actions, perceptions of and changes in attitudes pertaining to the EBT, its implementation and delivery fall into these three sub-processes. The Conceptual Framework of Implementation Outcomes defines several possible implementation outcomes for evaluation (9). The penetration and sustainability of an EBT among the target group are relevant measures when a programme is launched to achieve maximal outreach and permanent adoption of the EBT.

Factors related to staff, the EBT, the organization and the programme affect attitudes and changes in the target group as a programme progresses. These, in turn, have an impact on the sustainability and scaling up of implementation outcomes after the initial introduction of the programme (2,6,10–12). The staff's positive attitude towards a recently introduced EBT has been found to be a variable predicting its future sustainability (11). However, healthcare professionals' initial enthusiasm towards novel EBTs has been shown to decline as programmes proceed, which challenges the programmes' pursuit of the sustainable adoption of EBTs (11–14).

The best-proven EBT related features promoting sustainable adoption are relative advantage, usefulness or compatibility, and ease of use or complexity as perceived by the staff (see the Info box for definitions for terms) (2,9,10,15). The concepts of usefulness and compatibility also take into account the organizational viewpoint, namely the interaction between the organization and the EBT, referred to as the innovation-system fit (Info box) (9,14,16–18).

Ample evidence is available from earlier implementation studies in mental health care settings that training involving both active and passive learning strategies is superior in supporting the implementation of EBTs (6,13,19). Also, case consultations have been shown to be important in ensuring that adequate skills are acquired in delivering the EBTs introduced (13,20). Actual implementation outcomes arise from complex interactions between the programme, its target group and the organization involved (21).

The Ostrobothnia Depression Study (ODS) related Implementation Programme (ODS-I) was a regional real-world implementation programme for two EBTs, behavioural activation (BA) and motivational interviewing (MI), with therapists in secondary psychiatric care as a target group. There is within health care a call for naturalistic longitudinal evaluations of the success of real-world implementation programmes (22,23). Accumulating information on the actual impacts of the possible predictors of success will help the planning of future programmes. In spite of evidence that some of the therapists could implement some therapeutic techniques effectively after brief training (6), there remains a need to learn more about how much effort invested in training would be sufficient or optimal in various real-world conditions (23).

The ODS-I was intended to achieve maximal penetration of BA and MI among the target group. The present study, the first part of the overall evaluation of the ODS-I, was intended to evaluate the quantitative reach of the programme and test certain possible

explanatory factors. The following research questions were set: 1) how did the therapists' views on the usefulness of BA and MI change over the course of their implementation programme, 2) what extent of penetration was achieved by the implementation plan applied among the participating units a few months after the termination of programme support and 3) how was the penetration associated with therapist-related and perceived intervention-related variables? In addition, the implementation plan was categorized according to the NPT sub-processes.

Materials and Methods

The ODS-I was conducted within secondary psychiatric care in the Finnish region of South-Ostrobothnia as a regional programme related to a nationwide plan for improving mental health care and substance abuse services (24). A local overall aim was to initiate a process to standardize the uneven practices of assessing and treating non-psychotic patients. The treatment of depressive patients with possible comorbid anxiety and substance abuse disorders was chosen as a benchmarking patient group due to its substantial size (25,26). The ODS-I was targeted to increase delivery of BA and MI. All together, approximately 1,000 patients with depression as the main diagnosis are treated annually in these units.

Six psychiatric units of the South Ostrobothnia Hospital District participated in the ODS-I. Five of them were outpatient units, and one was an 18-bed acute inpatient ward. The catchment area population was 200,000. The participating units employed 72 therapists regularly and they as a group (not individually) comprised the target group. The target group was unstable due to staff turnover during the programme (2009-2013). The target group was invited to participate in the ODS-I and respond to the implementation study questionnaires. Enrolment in the ODS-I did not signify automatic enrolment in the ODS-I implementation

study. The therapists were informed verbally about the implementation study, its voluntary nature, anonymity and that responding or not to the questionnaires would not have any effect on their status as employees. The therapists were not asked to provide written consent.

The realization of the ODS-I relied on the organization's in-house human resources and expertise without external funding or other resources. Assigning the programme executives from among the internal staff to ODS-I was also hypothesized to ensure that the programme would be consonant with the organizational focus, which, in turn, has been shown to facilitate innovation adoption (2,27). BA for the treatment of depression and MI for the treatment of comorbid substance abuse were selected as the objects for implementation as they were assessed to have a good innovation-system fit (28,29). Due to staff turnover, altogether 84 ODS-I-enrolled therapists were trained in BA and MI during the time period from September 2009 to April 2012 (Supplementary Figure 1 in Supplement 1). The programme ended at the end of 2013 with the closing of patient recruitment for the clinical study.

The BA treatment was based on a semi-structured format including the following methods: functional analysis, trigger-response avoidance pattern and strategies for change in routine regulation (30), and it was realized as an individual intervention. The distribution of sessions in the sample was 2.0±5.0 (md±IQR) sessions. The structure of MI treatment was individualized according to the Stages of Change Model developed by Miller and Rollnick (31). The distribution of sessions in the sample was 4.0±3.0 (md±IQR) sessions. All other appropriate treatment modalities available, e.g. drug treatment, could be offered to the patient according to needs identified. No experimental treatments were used. The protocol of the clinical research is presented in more detail at ClinicalTrials.gov (Identifier NCT02520271) (32).The outcomes of the clinical study have been reported elsewhere (33).

Table 1. Distribution of participating therapists' professional education.

Professional role	Completed q1[a]	Completed q2[a]	Completed q3[a]
Licensed Psychologist	3 (6.7%)	3 (10.0%)	5 (15.2%)
Registered psychiatric nurse	32[b] (71.1%)	22 (73.3%)	24 (72.7%)
Practical psychiatric nurse	10 (22.2%)	5 (16.7%)	4 (12.1%)
All	45 (100%)	30 (100%)	33 (100%)

[a]There were no differences in the distributions of education level by questionnaire (q1, q2 and q3).
[b]Includes two forms with missing information.

ODS-I was managed and supported by the administrative staff of the South Ostrobothnia Hospital District. According to the policy activities that constitute research in the South Ostrobothnia Hospital District, ODS-I and the related implementation study met the criteria for operational improvement activities exempt from ethics review. The data is available on request from the following authors, LHL or OK.

Implementation Plan and Programme Executives

The implementation plan included two training workshop days, one for each EBT, and subsequent case consultation groups and other more general strategies, which are presented in more detail in Table 2. The case consultation groups met after the workshops about once a month for a four-year period until the completion of the programme. The therapists were free to decide to participate the workshops or not. Attending the subsequent case consultation groups and other programme activities were optional.

The programme executives comprised three people, all in-house personnel: a psychiatrist merited in academic work and training, a licenced psychologist merited in training and a psychiatric nurse experienced in clinical work. The psychiatrist and psychologist were both also registered psychotherapists in cognitive behavioural therapy. The executives were responsible for carrying out all operational tasks incorporated in the implementation plan and for collaborating with the participating units and therapists in case of possibly emerging issues. The psychiatrist served as a trainer in collaboration with the psychologist and as a case consultant with the nurse. He also compiled the self-study material.

Table 2. Strategies used in the implementation plan of the Ostrobothnia Depression Study related Implementation Programme categorized according to the sub-processes of Normalization Process Theory for the sustainable introduction of new treatment practices in routine care (May and Finch, 2009).

NPT Sub-process	General description	Strategies used in ODS	Description
Implementation	Social organization of bringing practices into action.	Assigning the programme executives	The programme executives were nominated from among the internal staff. Their regular job descriptions were matched with the programme.
		Initial invitation of units	The units to invite were selected by the head of administration. The units were free to decide on participation in ODS. Further, they were free to determine how many and who of their therapists would be trained.
		Training workshops	Two one-day workshops in BA and MI, one for each, including lectures and supervised case simulations. Attending the workshops was the only prerequisite for a therapist to be deemed ODS-enrolled.
		Self-study material	Written clinical instructions for MI and a semi-structured manual for BA. Training videos for rehearse made available on the employer's website.
Embedding	The processes through which practices do or do not become routinely incorporated in the everyday work of individuals and groups.	Selecting the evidence-based treatments to implement	The selection criteria were 1) a good innovation-system fit and 2) appropriate brief psychotherapies for the treatment of depression with possible comorbid anxiety and substance abuse disorders.
		Case consultations	Once a month 2009-2014. Attendance was voluntary.
		Research nurse's unit visits	Monthly unit visits to address practical issues of the programme.
		Email bulletins	Information sent about monthly: on the progress of the programme, answers to diverse clinical issues emerging and relevant supportive material.
Integration	The processes by which practices are reproduced and sustained among the social matrices of an organization.	Not applicable	

Setting and Sample

The ODS-I-enrolled therapists were invited to respond to the implementation study questionnaires. Three survey points (q1, q2, q3) were set to obtain longitudinal data. The first two questionnaires were administrated in refresher seminars: q1 one year after the initial training and q2 a year after q1. The final questionnaire, q3, came three years after q2 (i.e. 4-5 months after the programme closed) and was administered at a normal weekly meeting of each unit. Fifty-seven (68%) of the 84 programme-trained therapists responded to one or more of three questionnaires and comprise the present study sample. The flow chart for three survey points of data collection and actualized survey intervals due to the stepwise enrolment of the therapists are presented in Supplementary Figure 1 and Supplementary Table 1 in Supplement 1. The therapists were predominantly female. Most of them had considerable experience; 63% of them had more than ten years in experience and only 6% not more than two years.

Instruments and Terminology

Term or construct (Measured by)	Definition
Organizational focus[a]	The essential objectives and tasks that the organization exists to perform and the staff is responsible for performing.
Innovation-system fit[b]	The degree to which an innovation matches the organizational focus and other factors of an organization's functioning. The term 'innovation fit' has also been used[a].
Adoption intention[c]	The degree of the strength of an individual's intention to perform [*the innovation*].
Sustained adoption[d], programme sustainment (UAI[e])	Persistence in maintaining [*the innovation*] as usual practice after the end of the programme support.
Relative advantage[c,f] (ICS[g])	The degree to which [*the innovation*] is considered superior to existing or usual practices.
Complexity, ease of use[c,f] (ICS[g])	Level of difficulty in understanding and using [*the innovation*]. The two terms represent opposite poles.
Compatibility[c,f] (ICS[g])	Consistency of [*the innovation*] with existing values, experiences, needs and organizational focus of the adopter and system.

[a](Hunter, Han, Slaughter, Godley, & Garner, 2015); [b](Greenhalg, Roberts, MacFarlane, Bate, & Kyriakidou, 2004); [c](Chin & Gopal, 1995), [d](Damschroder, Aron, Keith, Kirsh, Alexander, & Lowery, 2009); [e]Using activity scale; [f](Cook, Thompson, & Schnurr, 2014); [g]Intervention characteristics scale.

Info box. Definition for key terms or constructs.

Identical questionnaires were administered at q1 and q2 comprising all measures described below except the Intervention Characteristics Scale (ICS) and the Using Activity Index (UAI). For the final survey at q3, ICS and UAI were added and the questions on therapist-related factors were omitted (as this information was gathered at q1 and q2).

Therapists' Background Factors

Therapists' background factors comprised self-reported level of professional education, work experience in years, information on being a registered psychotherapist or not,

activity in using previously learned interventions, and perceived need for new training in treating patients with depression and/or substance abuse.

The question on level of professional education had three response options as the target group comprised representatives of these groups: a) vocational college/practical psychiatric nurse, b) university of applied sciences (UAS)/registered psychiatric nurse and c) university level/licenced psychologist. Besides professional specific tasks, they all served as therapists and treated all patient groups. The question on the length of work experience had four options: <2, 2-5, 5-10 and >10 years.

The response options to the question on being a registered psychotherapist or not was two-dimensional: “yes (training completed or over half-way)” or “no”. The term ‘registered psychotherapist’ in Finland refers primarily to a health care professional with officially approved structured additional training in some psychotherapy methodology, e.g. cognitive behavioural therapy, lasting at least three to four years after which that title may be used.

The questions on activity in using previously learned interventions, and perceived need for new training in treating patients with depression and substance abuse had a 6-point Likert-type scale ranging from “never” to “extremely often”. The expression ‘previously learned interventions’ refers to the fact that in Finland professionals employed in psychiatric care usually acquire a variety of additional training in various psychotherapy techniques or interventions during their careers. The duration of such training may vary from some hours to some years.

Usefulness Scale

The usefulness scale was constructed specifically for the evaluation of the ODS-I and it was used to assess the therapists’ overall experience of the EBTs The usefulness scale

consists of seven items eliciting the responder's self-assessment of the following subjects: level of proficiency in each EBT adopted (items 1 and 2), own anticipation of frequency of using the EBTs in the future (item 3) and impact of application of EBTs on a set of common factors in psychotherapy (items 4–7).

'Common factors in psychotherapy' refer to the elements of the treatment that are shared between different methodologies despite their different background theories (34). The four common factors relevant in the present study were management of the therapeutic process, meeting of the patient's needs (enriched toolbox), providing empathy and nurturing the hope of a patient (34–36).

Adoption Intention

Adoption intention was assessed with a question, which was also included in the Usefulness scale, on the respondent's anticipation of own future use of BA and/or MI. Responses were on a 6-point Likert-type scale ranging from "never" to "extremely often".

Intervention Characteristics Scale

The ICS consists of three constructs: relative advantage, perceived ease of use and compatibility, which all are recognized as significant in the Consolidated Framework for Implementation Research (10). The ICS was adopted and revised from the study by Chin and Gopal for the final data collection. The ICS and its factor loadings are presented in Supplementary Table 2 in Supplement 2.

Use Activity Index

The Use Activity Index (UAI) was calculated for each intervention as follows: the sum score of two items, namely frequency of use of given intervention and perceived level of routinization of that intervention on a 6-point Likert scale, was multiplied by the score of the number of patients treated with that intervention during the last three months (Supplementary Table 3 in Supplement 3). Due to the small number of respondents in q3 and eight of these having zero ratings in number of recently treated patients, we dichotomized this index to active and inactive therapist groups. The use of the ICS as a surrogate variable to the UAI is discussed in Supplement 3 under Methodological Consideration.

Analysis Methods

Statistical Methods

Chi-square tests were used for comparisons in survey participation between the therapists' professional education, work experience, activity in using interventions learned earlier, perceived need for new training and proportion of registered psychotherapists.

The reliability of the ICS items was tested by calculating Cronbach's alpha. To analyse the discriminant validity of the 12 ICS items for BA and MI, factor analysis using a two-factor rotated solution (Varimax) with generalized least squares extraction was performed. For the Usefulness scale, Cronbach's alpha in q1 was 0.869 (37), in q2 alpha = 0.756 and q3 alpha = 0.738.

Paired samples t-tests with 95% confidence interval (CI) were used in comparisons between q1 and q3, and between q2 and q3 usefulness scale total scores with data from therapists responding to both questionnaires. Independent samples t-tests (95 % CI) were used

in comparisons of the usefulness scale (five items; items 1 and 2 omitted from subgroup analyses since they were focused on adoption of BA and MI) and ICS scores between active and inactive users of BA or MI.

Spearman's correlation coefficients (r) were calculated for BA and MI UAI and for the usefulness scale and ICS total scores. Pearson' correlations were calculated for UAI and ICS. A therapist inactive regarding either BA or MI was defined as one making no use of the respective EBT during the last three preceding months. Other therapists were defined as active. The normality of the distributions for the usefulness scale and the ICS were tested with Q-Q plots showing normal distributions.

General linear univariate models were used to predict the perceived favourable intervention characteristics of MI and BA at q3. In these models the ICS total score for MI or BA (q3) was used as the dependent variable while therapist's background information (work experience, activity in using previously learned interventions and perceived need for new training) and adoption intention (q1) as independent variables.

The level of statistical significance was set at $p<0.05$. All calculations were performed with SPSS statistical software package (version 22, SPSS Inc.) and with Power and Sample Size Calculator (38).

In the power calculations for the usefulness scale with the present sample of 30 repeated responses and type I error probability of 0.05 a true difference of 2.8 points in the mean response with the power of 0.8 was detected. In comparison between groups of active and inactive therapists, with a total of 33 responses and type I error probability of 0.05, a true difference of 1.8 points in the mean response with the power of 0.8 was detected.

Qualitative Method

The ODS-I implementation plan was analysed by categorizing the strategies incorporated in the plan according to three NPT sub-processes: implementation, embedding and integration. The categorization was based on how each strategy was appraised to meet the general description of each sub-process (for more detail, see Table 2).

Results

Thirty-three therapists out of the study sample (n=57) completed questionnaire at q3, resulting in a response rate of 58% at the final survey point. In comparisons with survey participations no significant differences were found between the therapists' professional education (university or UAS/vocational college; chi^2=1.62; df=2; p=0.45), work experience in years (at most ten/more than ten years; chi2=0.80; df=2; p=0.67) activity in using interventions learned earlier (at most sometimes/at least quite often; chi^2=0.28; df=2; p=0.60), perceived need for new training (at most sometimes/at least quite often; chi^2=0.79; df=2; p=0.37) and proportion of registered psychotherapists (no/yes; chi^2=2.34; df=2; p=0.31). The following distributions (mean±SD) in q1 were obtained for those responding to q3: activity in using interventions learned earlier (3.88±1.45), perceived need for new training (3.88±0.93) and adoption intention (3.88±0.99).

Reliability of the Intervention Characteristics Scale

The Cronbach's alpha for all 24 ICS items was 0.928; for 12 items of BA alpha = 0.954 and of MI alpha = 0.928. The factor analysis resulted in two specific factors, one for the 12 BA items and one for the 12 MI items (rotated factor loadings 0.70–0.91 for BA and 0.55–0.87 for MI; Supplementary Table 2 in Supplement 2).

Changes in Usefulness Over Time

There were no significant differences between the usefulness scale total scores (mean±SD) in the q1 (n=33), q2 (n=30), or the q3 questionnaire (q1 vs. q3: 28.5±5.4 vs. 30.9±5.2; t=−1.61, df=53, p=0.11, 95% CI −5.3–0.6; q2 vs. q3: 28.7±4.3 vs. 30.9±5.2; t=−1.67, df=50, p=0.10, 95% CI −4.8–0.4, t-test).

Penetration and Sustainability of the Use of Interventions

Of the 33 therapists who completed q3, 23 (40% of the study sample) were active and eight were inactive users of BA (excluding two questionnaires with missing information). Thus these 23 active BA-users indicate self-reported penetration of 32% among the target group (n=72). Of the active therapists, 17 (73.9%) reported having used BA with one or two patients and the remainder with at least three patients during the last three months. For MI, 25 (44 % of the study sample) therapists were active users and eight were inactive users. Thus these 25 MI-users indicate self-reported penetration of 34% among the target group (n=72). Of the active therapists, 12 (48.0%) reported having used MI with one or two patients and the remainder with at least three patients during the last three months.

Associations Between Sustained Use of the Interventions and Perceived Intervention Characteristics

Comparisons between active and inactive therapists in BA showed a total score of five usefulness scale items (items 1 and 2 omitted) (mean±SD) 23.2±4.1 for active therapists

(n=23) and 18.9±1.2 for inactive therapists (n=8) (t=−4.51, df=29, p<0.001, t-test). In the corresponding comparison of MI, the total scores were 23.2±3.9 for active therapists (n=25) and 18.9±1.5 for inactive therapists (n=8) (t=−4.61, df=30, p<0.001, t-test). The total ICS score between therapists who were active and inactive in either BA or MI was also compared. The difference was statistically significant for both comparisons: BA: active (n=23) 53.1±10.1 vs. inactive (n=5) 40.2±9.3 (t=−2.62, df=26, p=0.02, t-test) MI: active (n=25) 58.3±8.3 vs. inactive (n=8) 49.5±5.9 (t=−2.75, df=31, t-test, p=0.01). The higher scores on the Usefulness scale and ICS signify a more positive experience.

Correlations between the use of BA and MI and the usefulness scale and ICS total scores are presented in Table 3. Correlations between the use of BA and MI in q3 and ICS perceived attributes were significant (p=0.01; n=23 for BA and n=25 for MI).

Table 3. Correlations (r) between both behavioural activation (BA) and motivational interview (MI) Using Activity Index (UAI) and, respectively, their perceived attributes according to the Intervention Characteristics Scale (ICS) and the usefulness scale in the final survey.

		BA UAI	MI UAI
Perceived ICS attributes of BA (sum variable)	r	0.67*	0.28
	N	23	25
Perceived ICS attributes of MI (sum variable)	r	0.39	0.60*
	N	23	25
Perceived usefulness scale of BA & MI (sum variable)	r	0.42**	0.55***
	N	20	22

*P<0.001, **P=0.067, ***P=0.008

Associations Between Therapist-Related Variables and Perceived Intervention Characteristics

The general linear univariate models for BA and MI with ICS perceived attributes in q3 as dependent variables resulted in insignificant models (n=18; p=0.75, F=0.48, df=4, ηp^2=0.13 and p=0.80, F=0.40, df=4, ηp^2=0.11, respectively). None of the predictors (work experience, activity in use of interventions learned earlier, perceived need for new training and anticipated future use of BA and MI at q1) showed a significant effect in either of the models.

Analysis of the Implementation Plan

The ODS-I implementation plan incorporated several strategies that fell into one or the other of two categories or NPT sub-processes: implementation or embedding. The analysis revealed that strategies for integrating the EBTs into the organizational structures had not been deployed. For more detail, see Table 2.

Discussion

The self-reported penetration of about a third in using the BA and MI within the target group was achieved by the implementation plan applied in ODS-I surveyed a few months after the completion of the programme. Therapists' favourable perceptions of these two EBTs in terms of relative advantage, compatibility and complexity were associated with their sustained adoption. Therapist-related factors, including positive adoption intention even at the one-year stage of the programme proved to be non-significant predictors of sustained

adoption. Strategies for integrating the EBTs into the organizational structures for sustaining and scaling up adoption activity after the end of the active programme phase were not included in the implementation plan.

Longitudinal change in the therapists' general views

The reliability of the Usefulness scale was acceptable at all three survey time points. The therapists' experiences of the general usefulness of BA or MI tended to improve consistently as the programme proceeded and continued after programme support had ended. However, the longitudinal changes in usefulness ratings did not reach statistical significance in this limited sample.

Sustained Adoption and Penetration of the Use of BA and MI

The penetration of adoption of BA and MI covers about a third of the target group. Accurate comparison with other studies is not feasible due to differences in settings and ways of reporting (22). However, despite this variation, it seems that the reach of adoption in ODS-I was somewhat less than in some previously reported programmes, e.g. a large system-wide implementation programme for EBTs targeted at post-traumatic disorder (22,23).

Regarding at least the BA, it is likely that the active therapists delivered it less fully (mostly with one or two patients during the preceding three months) than might be appropriate for their usual clientele. This interpretation is consistent with those of earlier studies (23,39).

The ODS-I implementation plan included various training modalities and reinforcing strategies, which have been widely acknowledged and connected to high-quality training in

psychotherapy interventions (6,13,19). According to another meticulous study among community therapists, participation in case consultation groups was a specific prerequisite for acquiring adequate skills for the successful delivery of a CBT application after a one-day training workshop (13). In the context of the ODS-I, attending the case consultations were optional and therefore not a prerequisite for a completed training. It is therefore plausible that participation activity in the case consultation groups affected the reach of sustained adoption of BA and MI in ODS-I, as a similar outcome was reported in a follow-up study on the abovementioned study on implementing a CBT application (40).

The ODS-I succeeded in supporting some of the therapists in introducing BA and MI. This corroborates earlier studies reporting that encouraging results can be obtained from very brief training interventions followed by case consultations (13,20). On the other hand, the ODS-I implementation plan had a strong emphasis on training and consulting the therapists. Strategies for ensuring sustainment and scaling up the implementation outcomes over time after the end of the programme were not included. This contrasts with NPT and other implementation theories or frameworks, e.g. Knowledge to Action Cycle, which both suggest the inclusion of means to ensure the long-term vitality of the implementation outcomes (3,41). Regarding accomplishing the sub-process of integrating the EBTs, ODS-I was dependent on the self-reliance of the participating units.

As the ODS-I pursued a sustainable change in the treatment practices prevailing in the organization, the leadership would have been a central organizational stakeholder group considered in the implementation plan (18,42,43). More than a decade ago, the slowdown of implementation of the Swedish Mental Health reform in one county was evaluated (44). The reform concerned major changes in the prevailing practices in the delivery of treatments. Its evaluation implied that the target staff groups were worried about the possible change in their professional position, which caused them to oppose the cultural change. The researcher

recommended investing in careful communication with the main stakeholder groups on how they could preserve their professional identity during a change. This, in turn, is in connection with the organizational structures, such as the management system. Unless innovations are properly integrated into the organization's structures, they tend to fade over time (3,9,12,20,40,41,45). In the case of ODS-I, integration strategies would have required additional, specifically allocated resources right from the beginning. To avoid this kind of pitfall in the future, several theory-based implementation models or frameworks have been advanced and become more readily available the past decade (46).

Associations between Adoption and Intervention- and Therapist-related Factors

The observed favourable experiences in terms of relative advantage, compatibility and complexity of BA and MI were associated with their sustained use. This finding concurs with firmly established evidence in the field of implementation science (2,10,11,47–49).

None of the therapist-related background factors (work experience, activity in using interventions learned previously and perceived need for new training) or anticipated future use of the new interventions at the one-year point were associated with ICS score at the final survey point, which is consistent with earlier findings (6,11). The present study could not, however, differentiate reliably between the attitudes of recently qualified and more experienced therapists, as most of them had at least ten years' work experience.

Need for new training and/or positive adoption intention reported at the early stage of the ODS-I was expected to reflect the likelihood of future uptake of the EBTs intended for the most common patient groups (43). However, this assumption proved incorrect. Initial enthusiasm usually shows a decline as a programme proceeds (11,12,40). Moreover, adoption

intention has been shown to be a multifactorial concept, which alone is an insufficient predictor of sustained implementation of EBTs (11).

Limitations

The final survey of the present study was conducted four to five months after programme support had ended, but there remains a need for longitudinal studies lasting for several years to better determine the fundamentals of programme sustainment (50,51). The primary aim was to gather data on the therapists' perceptions of the usefulness of the EBTs implemented and the extent of their application, so no pre-training assessment was used. It was therefore not possible to assess changes in the therapists' attitudes pre- and post-training. As the ICS was not yet in use at the one-year or mid-term survey points, it was not possible to analyse its predictive impact on the future use of the interventions.

The actual intervals between three questionnaires were subject to some variation in the study sample (Supplementary Table 1 in Supplement 1). This was due to a one-year delay in initiating ODS-I in one of the units engaged and to staff turnover in general. This variation may have resulted in differences in the length of time the interventions were in use before the completion of the questionnaires. Individual therapists cannot be later identified according to the length of their experience of using the interventions. The rate of penetration of the EBTs among the target group could only be calculated by drawing on the voluntarily given responses. The activity of the non-responding therapists remains unknown. They were interpreted as inactive only for purposes of calculating the best possible estimate of the penetrations of the EBTs. This was done to avoid positive bias but it may, in turn, cause some negative bias. The present data permit no assessment of fidelity in delivering the EBTs implemented, which has been shown to be one critical factor impacting patient outcomes (52).

However, the clinical effectiveness study ODS recently showed that BA were beneficial in comparison with treatment-as-usual in regard to patient outcomes (33). It is also appropriate to note that there are several other factors, many of them complex or multidimensional, which are influential in implementation programmes but not controlled for in the present study. Such factors may relate, among others, to the therapists (e.g. the individual stage of change), context (e.g. differences between the units) and programme processes (e.g. planning the programme) (10).

The maximum response option for the number of patients a responding therapist had treated was "over five patients". This limited the sensitivity of the measure to any potentially significant variation at higher levels of adoption. The limited option, however, was important because it is hard to recall precise details of patient numbers without checking back.

The response rate for q3 was moderate, but somewhat lower than in previous implementation studies with a naturalistic and test–retest setting (12,53). The response rate prevented us from performing some intended longitudinal analyses, e.g. between the usefulness scores at q1 and activity of use at q3. Not all determinants affecting the response rate could be identified, but the lack of integration strategies, e.g. an engagement strategy for the team leaders, is one possible explanation, as it was also hypothesized that this may undermine the sustaining and scaling up of the implementation outcomes in general.

Conclusion and Practical Implications

The ODS-I was a multi-faceted implementation programme that, despite limited resources, was able to promote the adoption of BA and MI in a real-world setting. Absence of strategies for integrating the implemented EBTs into the organizational structures potentially undermines the long-term survival of the implementation outcomes. A longitudinal approach

in this naturalistic evaluation turned out to be a tricky but still valuable ambition. It pinpointed the crucial importance of paying a specific attention to tackling staff turnover as well as difficulties in recruiting therapists to respond to the surveys and nurturing their interest in applying the desired EBTs in their work.

The present findings suggest that the ODS-I can be seen as a pilot that after some improvements offers a feasible base for continuing with the implementation efforts. This study highlights two different levels where improvements could be achieved: the active adopters and the organization. As activity likely implies motivation, it could be fruitful to collaborate specifically with the active adopters to further elaborate strategies to enhance their skills in the EBTs implemented. Attention to organizational structures is also vital in order to sustain and scale up the delivery of the implemented EBTs after the programme. The leadership is a key structure enacting organizational processes. Therefore, specific strategies for coaching team leaders to contribute a programme could be beneficial. Furthermore, opposing the detrimental effect of staff turnover requires organizational strategies that ensure that newcomers will be provided with training and clinical support in the desired EBTs also after a specific programme has ended.

The research on ODS-I will be continued with two studies, one applying mixed-methods and the other qualitative focus group interview. They will go more deeply into the organizational aspects and programme modalities and also into the programme processes in order to arrive at more precise practical proposals for a more refined programme.

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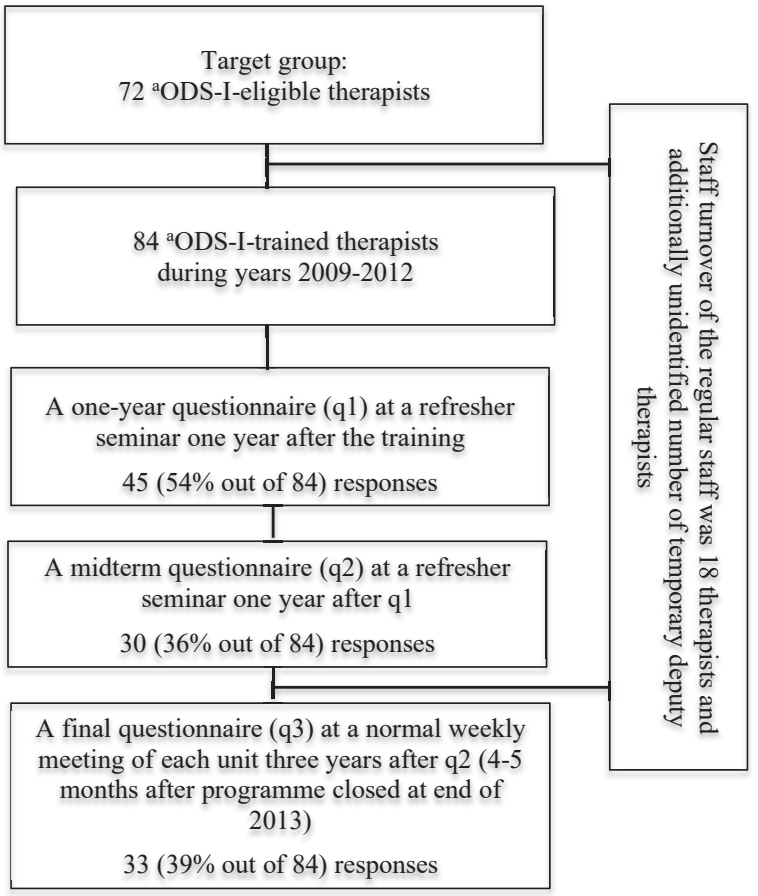
Supplement 1



[a]The Ostrobothnia Depression Study related Implementation Program (ODS-I)

Supplementary Figure 1. Flow chart of the training and data collection. Due to the relatively low participation rate in the refresher seminars the principal investigator collected the q3 responses during the regular weekly meeting at each unit engaged in the programme in order to obtain more comprehensive final stage data.

Supplement 1

Supplementary Table 1. The time intervals between the survey points among the ODS[a]-trained therapists who responded to the surveys.

Time from q1 to q3 (years)	**n**	**%**
4	26	60.5
3	10	23.3
2	7	16.3
total	43	100
Time from q2 to q3 (years)	**n**	**%**
3	25	83.3
2	5	16.7
Total	30	100

[a]Ostrobothnia Depression Study

Supplement 2

Supplementary Table 2. Items and factor loadings of the revised Intervention Characteristics Scale: Two identical series of 12 questions were addressed separately for each intervention and this generated two distinct factors.

Domain	Item[b]	Factor loadings[c]	
		MI[d]	BA[d]
Relative advantage	1. How useful do you find the [*the intervention*] in your work?	0.55	0.84
	2. How effective do you find [*the intervention*] when used in your work?	0.66	0.70
	3. How do you assess the influence of [*the intervention*] on the productivity and outcomes of your work?	0.79	0.82
	4. How do you assess the influence of [*the intervention*] on your ability to perform therapy?	0.81	0.81
Perceived ease of use	5. How do you find the operational use of [*the intervention*]?	0.71	0.91
	6. How adaptable do you find [*the intervention*] when treating different kinds of patients?	0.77	0.83
	7. How did you find starting to operate with [*the intervention*]?	0.59	0.83
	8. Was it easy to acquire the skills for performing [*the intervention*]?	0.81	0.83
Compatibility	9. Is using [*the intervention*] readily compatible with the work you are currently doing?	0.62	0.82
	10. How do you find the applicability of [*the intervention*] in treating your most usual patients?	0.85	0.85
	11. How does [*the intervention*] match your preferences regarding therapy?	0.87	0.78
	12. How does [*the intervention*] match you personal working style?	0.78	0.74

[a]Adapted from Chin and Gopal (1995).
[b]Each item was revised to suit the purposes of the Ostrobothnia Depression Study.
[c]Significant when value is ≥0.50.
[d]MI: motivational interview (factor 1); BA: behavioural activation (factor 2).
Note: A 6-point Likert scale was used to score each item, with the response options: (negative to positive poles) “Extremely poorly”, “quite poorly”, “modest poorly”, “modest well”, “quite well”, and “extremely well”. In addition, a separate neutral option (“does not have influence”) was used for questions 3 and 4.

Supplement 3

Supplementary Table 3. Using Activity Index was calculated by multiplying the sum score of items 2 and 3 by the score of item 1. If the response to item 1 was "No", the respondent was regarded as inactive.

Item[a]	Response options
1. Have you used [*the intervention*] during the last 3 months?	□ No → omit questions 2 and 3 □ Yes, with 1–2 patients □ Yes, with 3–5 patients □ Yes, with over 5 patients
2. How often do you use [*the intervention*]?	□ Less often than once per month □ 1–3 times a month □ About once a week □ Several days a week
3. How do you feel you adopted [*the intervention*]?	A 6-point Likert scale with response options of: "not at all, "so-so", "moderate good", "nearly good", "good", and "extremely good".

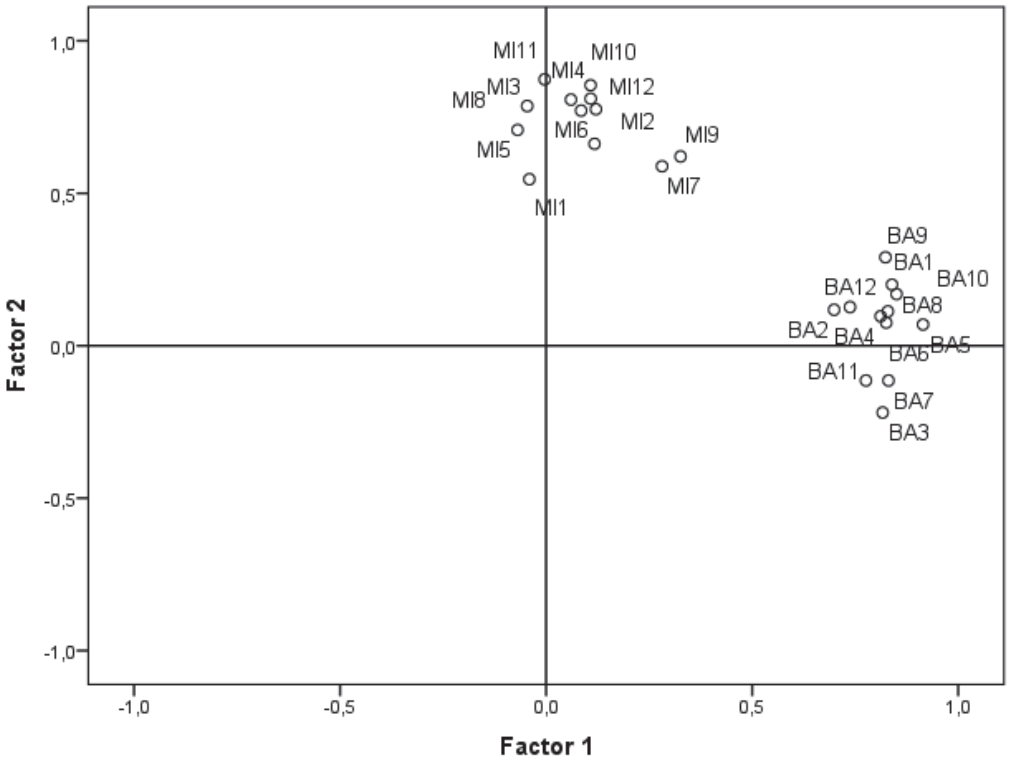
[a]Motivational interview and behavioural activation had separate question sets.

Methodological Considerations

As a part of the study, we validated the ICS to examine how the therapists perceived relative advantage, ease of use and compatibility of BA and MI separately. The reliability and factor structure of the ICS appeared to be satisfactory. The total score for the scale showed excellent internal consistency for each intervention, and the two resulting factors were subject-specific (Supplementary Figure 2).

For both interventions, the strong correlation between the UAI and perceived favourable intervention characteristics allowed us to use the ICS as a surrogate variable instead of the UAI. This was necessary because of the skewed distributions in the use of MI and BA. The ICS showed normality in distribution and appeared to be more reliable for analysis as a target variable in this relatively small sample.

Supplement 3



Supplementary Figure 2. Factor plot for intervention characteristics scale. Question numbers refer to corresponding numbers in Supplementary Table 1. MI= motivational interview, BA=behavioural activation.

OK

PUBLICATION III

Making implementation programmes better. Mixed-methods case study of an implementation process for two evidence-based brief psychotherapies "Click here and type Title of the Publication"

Lars H. Lindholm, Jorma Komulainen, Antero Lassila, Olli Kampman

Submitted at 9th Nov 2021

PUBLICATION IV

Importance of congruence between communicating and executing implementation programmes: A qualitative study of focus-group interviews

Lars H. Lindholm, Minna Laitila, Antero Lassila, Olli Kampman

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Implementation Science Communications

RESEARCH Open Access

Importance of congruence between communicating and executing implementation programmes: a qualitative study of focus group interviews

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Abstract

Background: The Ostrobothnia Depression Programme (ODP) in Finland was intended to implement two evidence-based brief psychotherapy interventions, namely motivational interview and behavioural activation, in several regional psychiatric teams. A simultaneous effectiveness study was conducted. Considerable tension was encountered between these two arms, causing resistance to change. We conducted a qualitative case study to better understand this tension and to discuss how managerial and executive practices may ensure the successful running of a hybrid design programme.

Methods: We conducted focus group interviews to evaluate the phases of preparation and practical execution of the ODP from the perspectives of management and the programme executives. To gather the data, we applied the revised Socratic approach for health technology assessment and focus group interviews. We analysed the data deductively according to the Normalization Process Theory.

Results: We identified two main critical issues: (1) The ODP programme plan ignored the team leaders' crucial role in influencing the implementation climate and mobilizing organizational strategies. The ODP had a simplistic top-down design with minimal and delayed collaboration with its target groups in the preparation phase. (2) Incongruence occurred between what the project group had explicitly communicated about being the spearhead of the ODP and what they then actually enacted. These two issues caused tension between the implementation efforts and the effectiveness study as well as resistance to change among the staff.

Conclusion: Early, open collaboration with all prospective stakeholders towards a shared understanding about the programme is the first action the programme administrators should take. Agreement on goals and the means to achieve them would lower tension between the two arms of a hybrid design programme, thereby reducing resistance to change. Congruence between the goals communicated and the actual managerial and executive actions is of paramount importance in getting the programme recipients on board.

Keywords: Evidence-based treatment, Implementation, Programme evaluation, Effectiveness-implementation hybrid design, Normalization Process Theory, Focus group interview

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Contributions to the literature

- Our results reveal a risk of tension between the simultaneous implementation efforts and the effectiveness study.
- It is important to systematically maintain the balance determined between the two arms of a hybrid design programme.
- We identified two contrasting ways of responding to the same programme and explain and discuss their implications.
- We contribute to what is known about the need for early collaboration with every stakeholder group of a programme to motivate their readiness for change.
- We found the Revised Socratic Approach for Health Technology Assessment a feasible instrument, also for assessing immaterial heath technologies.

Background

Quality improvement is the main aim of a programme for implementing an evidence-based treatment (EBT) in the context of a health care organization [1]. The ultimate intended beneficiaries are the patients. The key challenge for programme administrators is to develop a programme plan encouraging frontline treatment providers to incorporate the EBT into their routine practices [2]. Several theory-based implementation models or frameworks were constructed to facilitate the work [3–9].

Several determinants for the acceptance of an implementation programme have been identified [5, 10]. These include top-down vs. bottom-up programme design, early vs. late collaboration with each stakeholder group, and the leaders' reactions to various manifestations of readiness for change among the relevant personnel [11–13]. The role and performance of leadership have been reported to be critical for the success of a programme and also for sustaining its outcomes [2, 14–16]. The factors above, in turn, have an influence on the implementation climate, by which we mean the shared receptivity of the staff involved [5]. 'Programme theory' is a concept that refers to an individual idea about what might be achieved and by which interventions or operations in a given context [17]. This theory, in turn, guides those responsible for the programme in designing the programme plan. They may accomplish this work either heuristically, relying on their previous experience and expertise, or then methodically, grounding their design in a theory-based framework or model, or then a combination of these [7].

Ensuring that an intervention continues to be effective throughout an implementation programme is a fundamental concern [18]. Conducting effectiveness-implementation hybrid design studies is a rising and much advocated approach to address this concern [19, 20]. In such a study, these two arms run concurrently. Hybrid design studies are likely to expose the potential tensions inherent in real-world implementation processes of EBTs and their impacts on their application [21, 22]. For instance, some elements of the original intervention may require adjustment to the real-world setting, thereby risking impaired efficacy [21]. This lends support to the call for increasing the application of hybrid designs to gather more clinically quality-controlled knowledge on implementation efforts [23, 24]. However, not enough is known about possible procedural tensions between effectiveness studies and implementation efforts in naturalistic settings and this gap needs to be addressed.

The administration of the psychiatric department of South Ostrobothnia Hospital District in Finland launched the Ostrobothnia Depression Programme (ODP) [25]. The main goal was to bring about a change in the clinical practices to bridge the gap between the resources available and the increasing demand for treatment for depressive patients. The ODP carried out both the implementation programme and the effectiveness study for two evidence-based brief psychotherapy interventions, namely motivational interviewing (MI) and behavioural activation (BA) [26, 27]. A quantitative evaluation of the implementation programme showed that a third of the target group were active adopters of MI and BA [28]. The effectiveness study yielded positive results [29].

Earlier evaluations of the ODP implementation were conducted among the frontline therapists, the intended adopters of MI and BA. In the summative evaluation, the implementation outcome only reached a third of the target group. It also revealed that the ODP lacked strategies for sustaining and scaling up the implementation outcomes in the long term [28]. This was attributed in part to the weak role of the team leaders in the programme execution and was strengthened in the mixed-methods evaluation of the influence of different organizational- and programme-related factors (Lindholm et al., submitted). In addition, considerable resistance to change was encountered in some of the participating teams while others welcomed the ODP. These observations led us to augment the overall evaluation qualitatively with a special focus on the managerial and executive processes. We hypothesized that these social processes in designing and executing the ODP would explain the tension related to conducting the hybrid design programme. This case study was to test our hypothesis. We also discuss how the information obtained could be considered on future programmes.

The ODP

The hospital district in charge of the ODP is responsible for the provision of public specialized health care

services to a population of 200,000. The ODP ran during the period 2009–2013. It was a regional programme comprising two integrated subprogrammes: the Ostrobothnia Depression Study (ODS) and related Implementation Programme (ODS-I). The ODP was aimed to encourage frontline therapists to implement MI and BA and to recruit patients for an effectiveness study of these interventions. Thus, the ODP had a hybrid effectiveness-implementation design, although the term was not used as the ODP was launched a few years before the term was introduced [19]. Participation in the training in MI and BA and in applying them in everyday work did not constitute commitment to recruiting patients for the effectiveness study. However, this was intensely encouraged. The programme resources are presented in Fig. 1 and the therapists' tasks regarding the effectiveness study in Table 1.

The goal to develop clinical practices to meet the increasing flow of depressive patients was initiated by the hospital district administration. The clinical director of the psychiatric department assembled a project group to elaborate a programme for this purpose. In addition to the clinical director (MD, PhD), the project group comprised principal and associate programme executives (a professor of psychiatry and a registered psychologist, respectively) and a senior consultant (MD, PhD), all of them permanently employed in the hospital district. They deemed an effectiveness study important for the quality control of the innovation. For the execution, the project group was reinforced with two assisting research nurses.

Methods

The unit external to the ODP managing organization was excluded from the present study in order to focus the evaluation on intra-organizational processes. We collected the present data in March 2015, 16 months after the end of the ODP. The time gap was because the analyses of the final summative inquiry and mixed-methods study, both administered to the frontline therapists in spring 2014, revealed a need to complement our understanding about administering of the ODP. The present authors' connections to the ODP and the present study are presented in Table 2. Also, their connections to the managing organization and their mutual professional relationships are presented in Additional File 1. In reporting the study, we adhered to the 32-item checklist of consolidated criteria for reporting qualitative studies (COREQ), which is presented in Additional File 2 [30].

Setting

Formation and description of the study group

We assembled the study group according to the purposeful sampling strategy 'complete target population' [31]. We emailed the invitation to the whole ODP project group and all team leaders of the target units, 14 individuals in total. Only one recipient, involved in the project group, declined the invitation due to compelling personal reasons, thus resulting in a study group of 13 individuals. We informed the study group in advance about the purpose, setting and course of the study as well as the principles for handling the data. This included information about the videotaping of the interviews and the assurance that no interviews would be transcribed due to the sensitive nature of the material and further the assurance that each participant's identity would be protected as far as possible during processing and utilization of the information obtained. Recipients were assured that participation in the study was

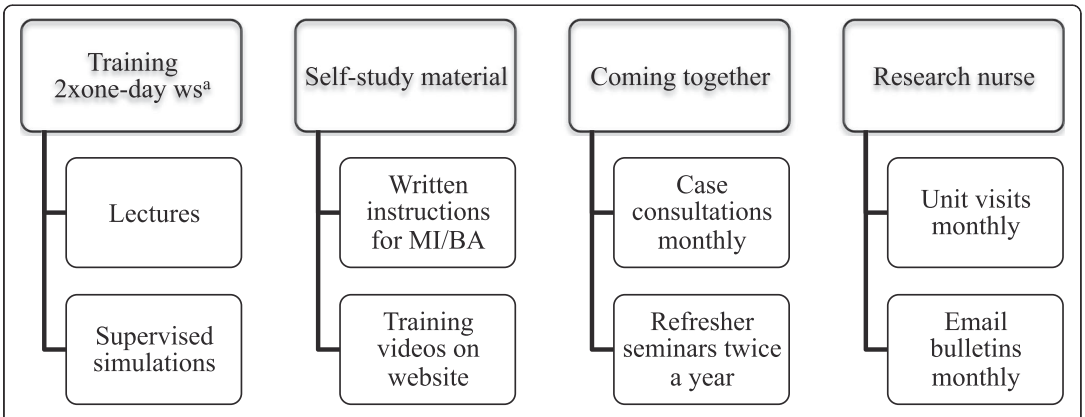

Fig. 1 Programme resources allocated to the Ostrobothnia Depression Programme. Attending training was the only prerequisite for a therapist to be regarded as ODP enrolled. Superscript letter 'a' indicates 1-day training workshops for both behavioural activation and motivational interviewing

Table 1 Tasks for a therapist regarding the Ostrobothnia Depression Programme-related effectiveness study. The doctors were responsible for diagnostics and medication. Patients referred to psychiatric secondary services because of depressive symptoms, anxiety, self-destructiveness, insomnia and alcohol or other substance-related problems were screened for recruitment. The inclusion criterion was 17 points in Beck Depression Inventory, 21-item (BDI-21), but patients with psychotic disorders or organic brain disease were excluded

Patient's first visit to a unit/therapist	Recruitment - Giving information about the study - Requesting a written informed consent After the consent - Filling in a three-page patient data form - Performing a structured patient assessment (BDI-21, AUDIT, alcohol dose counter form, GAF, MINI-C) - Filling in a referral to laboratory tests
During the treatment	Every 2 weeks - BDI-21 When necessary - CIWA-Ar - Patient follow-up form after detoxification - Study discontinuation form

AUDIT, Alcohol Use Disorder Identification; *GAF*, Global Assessment of Functioning; *MINI-C*, Mini International Neuropsychiatric Interview, module C for assessment of suicidality; *CIWA-Ar*, Clinical Institute Withdrawal Assessment for Alcohol Scale

voluntary and would in no way affect their status within the organization. All members of the study group gave verbal consent to participate.

The study group was divided into two focus groups (FG 1 and FG 2) according to each member's relation to the ODP: FG 1 comprised the project group and FG 2 team leaders (for more detail, see Table 2). All members of the study group and the researchers had been permanently employed in the organization for years before the launching of the ODP; thus, their relationship was established prior to the present evaluation.

Interview protocol and guides

We interviewed FG 1 twice (FGI 1.1 and FGI 1.2) and FG 2 once (FGI 2) (Fig. 2). The iterated interview with FG 1 was to involve the project group reflexively in appraising the data obtained so far and completing the description of ODP processes. This was done to ensure richer and more accurate data. Each interview lasted 3 h and was divided into two parts with a short break between them. Four members out of five in FG 1 and five out of eight in FG 2 attended the group interviews in person. Four individuals were unable to attend the group interviews in person due to pressure of work but provided the desired information in alternative ways: The FG 1-enrolled associate executive was interviewed separately immediately after FGI 1.1, and the information obtained was included in the respective report. One FG 2-enrolled person provided written feedback before FGI 2, and this information was presented to FG 2 during the interview. The remaining two FG 2-enrolled people who were unable to attend in person had discussed the issues beforehand with their attending colleague.

We compiled two interview guides: the first for the interviews with FGI 1.1 and FGI 2 and the second for the interview with FGI 1.2. The first interview guide covered

Table 2 Participants' various relations to the study and manuscript

Relation to the study	Role in the interviews	Relation to drawing the final results	Relation to the manuscript
Main researcher	Interviewer	Main	First author
Collaborating researcher	Secretary[a]	Collaborating	Second author
Study group			
Focus group 1/the project group, five members			
Clinical director of the psychiatric department	Informant	Acceptance	Third author
Principal designer and executive of the programme, prof. in psychiatry	Informant	Acceptance	Fourth author
Associate designer and executive, reg. psychologist	Informant	Acceptance	None
Two assisting research nurses	Informants	Acceptance	None
Focus group 2/team leaders, eight members			
Eight people, both psychiatrists and registered nurse	Informants	None	None

[a]The collaborating researcher had to be excluded from the interview of focus group 2 due to her managerial relation to its nurse members, so the main researcher also took notes while interviewing. The notes were checked afterwards against the videotapes

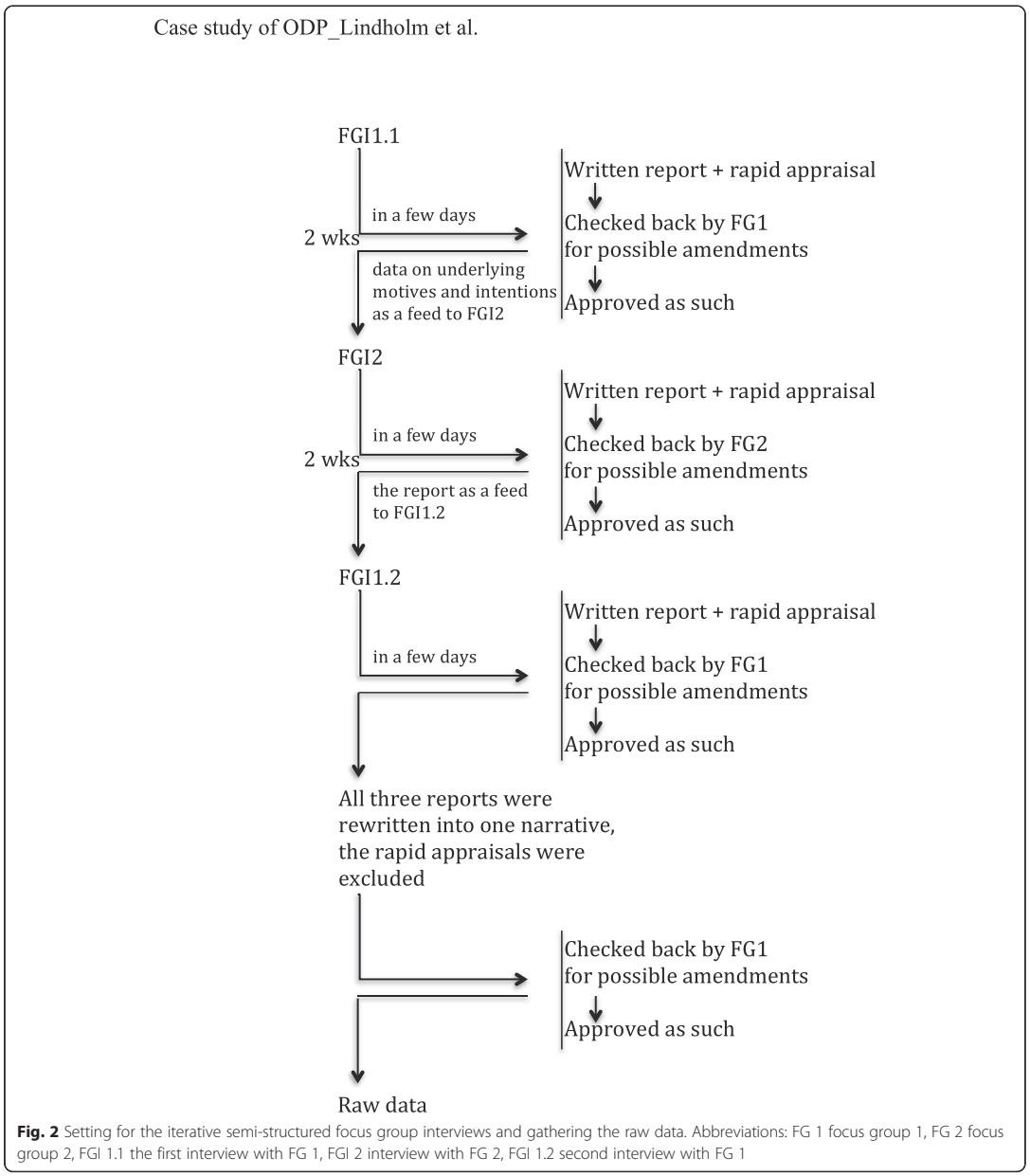

Fig. 2 Setting for the iterative semi-structured focus group interviews and gathering the raw data. Abbreviations: FG 1 focus group 1, FG 2 focus group 2, FGI 1.1 the first interview with FG 1, FGI 2 interview with FG 2, FGI 1.2 second interview with FG 1

five topics that we considered to require in-depth evaluation. These topics were the underlying motives and intentions of the ODP, its management, the perspectives of the participating units and the interests of the individuals conducting the present evaluation and creating a quick vision for future developments. The actual questions to be asked during the interview were selected and adapted from the Revised Socratic Approach for Health Technology Assessment [32]. This approach is presented more specifically in Additional File 3, and the creation of the first interview guide is presented in more detail in Additional File 4, Table A. The second guide,

for the interview with FGI 1.2, was composed to ensure rich and valid data in collaboration with those responsible for the ODP (see Additional File 4, Table B).

While creating the interview protocol and guides, the first author had reflective discussions about the mission and procedure with the collaborating researcher, the clinical director and the principal programme executive. Due to the setting, we had no opportunity to pilot the interview protocol and guides in practice.

Forming the raw data

As a base, we had the technical data on the ODP comprising the implementation plan of ODS-I [28], the research plan of the ODS including the protocol for data collection (Table 1) and total executive resources in ODP (Fig. 1). We gathered the supplementary information through an iterative and collaborative process in the FGIs. Finally, we wrote one, rich narrative on administering the ODP, which served as the raw data. See more detail in Fig. 2.

Qualitative content analysis

The case of our study was the process of running the ODP all the way from its rationales to its completion, and the unit of analysis was the narrative that served as the raw data [31]. We analysed the raw data through deductive qualitative content analysis [33] guided by Normalization Process Theory (NPT) [34, 35]. The NPT is presented more specifically in Additional File 3 and the coding frame in Additional File 5. Our analysis and extracting the results progressed in four steps: First, we encoded the raw data using different colours and reorganized it according to the main categories. Second, we re-encoded and organized the data further according to the subcategories. We reviewed the relevance of the encoding during the two first steps and readjusted when needed. Third, we condensed and rewrote the information contained in the encoded text pieces into a fluent narrative in terms of each subcategory. Fourth, we extracted the relevant information in terms of our hypothesis from the data analysed, thereby providing the results of the present study.

The first author performed the coding and extracted the results in close consultation with the second author. Finally, we presented the results to the members of FG1 for appraisal and possible amendments. They suggested some refinements and, after these had been made, they accepted the results presented below. The analysis of the data was processed manually with assistance of Word for Mac 2011.

Results

Two main critical issues emerged, which we interpreted to shed light on the friction encountered during the ODP: (1) The programme theory was grounded on the conception that the goals of the ODP were feasible by addressing programme strategies almost exclusively to frontline therapists (Fig. 1). To the frontline therapists focusing strategy was based on the idea of learning by doing. The programme theory was purely heuristic and implicit and was not tested against any formal implementation theory or model. Those who designed the ODP drew on their previous experience of administering developmental programmes and also on their pedagogical expertise and experience of serving as trainers. In addition, they had individual experience of their own training in psychotherapy having a positive impact on mastering clinical work (Fig. 3). (2) Right from the

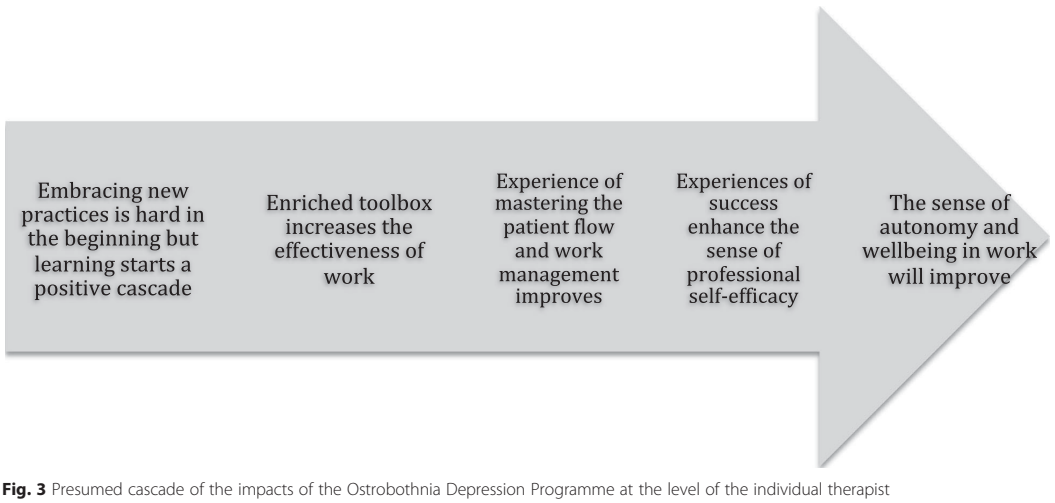

Fig. 3 Presumed cascade of the impacts of the Ostrobothnia Depression Programme at the level of the individual therapist

outset, there was tension between the simultaneously administered implementation programme and the effectiveness study. Although the programme executives explicitly articulated that implementation and quality improvement were the primary intention, the ambitions related to the effectiveness study practically outstripped those of the implementation programme. The results underlying these two issues are next presented in more detail.

Lack of involvement of key stakeholders

The reasoning and determination of the ODP goals were constructed mostly at a high level in the organization (Table 3). Prior to the ODP, the clinical director was aware of increasing distress among the frontline personnel due to accelerating patient flow, and the ODP was launched to tackle the problem. The project group included no lower level leaders or frontline therapists from the intended target group. The team leaders were not invited until the phase of finalizing the programme plan. The primary goal the project group had set for the ODP was to achieve quality improvement in clinical practices. However, in the experience of the team leaders, the preparatory process had proceeded one-way, top-down, which they considered to be a deviation from the normal collaborative two-way managerial practices adhered to while preparing organizational strategies. They saw one-way preparation as a normal and acceptable practice for research programmes. In addition, in the name of the programme, the term 'study' preceded the term 'implementation', which, they said, strengthened their perception that the research was accorded priority. In summary, the specification of the ODP was not a collaborative effort between various stakeholders, who thus achieved no shared understanding about the emphasis between the two endeavours.

Deficient consideration for readiness for change in recruitment efforts

Participation in the ODP was originally voluntary for the units invited, at least in principle. Not all psychiatric units of the hospital district were invited. The invitations were targeted according to two criteria: (1) the clinical director's impression of the positive readiness for change in the units and (2) the number of patients needed for the effectiveness study. The largest unit was invited according to the second criterion only, that is, to satisfy the needs of the research. Since the largest unit initially declined, they were persuaded to participate after a 1-year delay. The other units accepted the invitation at the first step. In summary, involving the largest unit in the ODP was fundamentally incongruent with the first invitation criterion, i.e. readiness for change, and actual willingness to participate on the part of the staff.

Absence of buy-in among key stakeholders

Most of the voluntarily participating units' team leaders saw the ODP as an opportunity to learn something new and to review the prevailing treatment practices, although they still saw it primarily as a research programme. The reception of the ODP between units varied from welcoming it, through confusion, to considerable resistance. The programme executives identified one team where the collaboration had been smoothest. The ideas in the ODP were congruent with the team's own ideas, which they had already been working with. By contrast, considerable resistance arose in the largest unit, which had initially been reluctant to participate. In

Table 3 Preparation of the Ostrobothnia Depression Programme (ODP) and stages of involving different stakeholder groups

Stakeholder	Stage	Description
The project group[a]	I Identifying and analysing the problem to be tackled	Obstructed patient flow and difficulties in work management.
	II Defining the goals	1. Speed up the treatment process by increasing delivery of brief therapies 2. Increase application of the integrated treatment model to make up for the deficit in the treatment of dual diagnosis patients 3. Measure the effectiveness of the treatment model 4. Improve the work well-being of the staff by strengthening their work management
	III Preparation of the programme plan	a. Determining the criteria for selecting the interventions to implement b. Determining the criteria for inviting the units to participate c. Designing the treatment model d. Designing the implementation plan e. Designing the protocol for the effectiveness study
The project group and team leaders	IV Finishing the programme plan	a. The project group consulted the team leaders a few times for amendments b. The plan was modified slightly in terms of practical execution according to the comments

[a]The project group = the clinical director of the department of psychiatry, the principal and associate executives of the ODP and a senior consultant, and for execution, the group was reinforced with two assisting research nurses. They were all permanently employed in the main target organization

addition, a previously unarticulated confusion about the ultimate intentions of the ODP was eventually articulated. Tackling the resistance greatly depleted the executives' resources. The team leader of this unit deemed the goals for the ODP to be relevant but considered that the change aimed at was too ambitious to be loaded on one programme. Moreover, the team leader appraised merging programmes for implementation and clinical research as an improper setting to reach the goals.

Despite enrolment in the ODP at the level of units, the enrolment of the therapists in the training varied widely between the units. At best, all the therapists of one unit completed the training. At worst, only one or two therapists of a unit joined in, including one temporary substitute. Some of the units assigned more therapists to the training later on and some of them were motivated mainly by the hope of simply getting the ODP over and done with. In summary, despite the participation, collective inclination to work on the ODP varied widely across units between adherence and resistance. Two essential manifestations of this tension were identified: the therapists' enrolment in the training varied across units from poor to comprehensive and the motivation of some therapists joining at a later stage was dubious.

Participant withdrawal and turnover

Due to at least two reasons, the number of patients to be recruited for the effectiveness study was accumulated more slowly than anticipated: (1) some of the initially keen therapists got tired in the course of the programme and withdrew and (2) staff turnover cut down the number of ODP-trained therapists. Recruiting patients began to accumulate on fewer shoulders, which caused stress. The question, 'when will this be over?' arose among the therapists. In summary, the accumulation of workload biased progressively as the ODP proceeded, resulting in programme fatigue.

Failure to focus on implementation effort

Some positive experiences in the early phase encouraged the programme executives to think that the strategies applied in the ODP had the potential to bring about the desired cultural change in treatment practices at the level of the entire department. However, they became hesitant as the programme proceeded, partly because they noticed that patient recruitment for the effectiveness study occupied too large a role and the idea of implementation faded. The team leaders had a shared perception that the concurrent running of the implementation and clinical research programmes caused confusion among the therapists. The number of patients needed for the effectiveness study was intended not only to ensure the strength of the study but also a sufficient amount of practice needed to consolidate skills in BA and MI. The drive to satisfy the scientific interest escalated as the ODP proceeded, and this exacerbated the therapists' sense of pressure, which further increased their negative perception of the ODP. In summary, enthusiasm for the implementation declined and the effectiveness study gained in significance as the ODP progressed, which jeopardized achieving the original goal of extensive implementation of BA and MI.

Discussion

Our analysis revealed two key factors and related phenomena, which helped to understand the course of the ODP: (1) The programme theory. This was based on the project group's experience of previous developmental programmes and expertise in training. In addition, they assumed that the ODP goals would be feasible by addressing the programme strategies almost exclusively to the frontline therapists. This assumption in particular led to a too narrow programme theory, which ignored the team leaders' crucial role in influencing the implementation climate and mobilizing organizational strategies [2, 15]. (2) Coherence between what was explicitly communicated and what was practically accomplished on a programme. The ODP was communicated primarily as an implementation programme for EBTs. However, the target teams perceived that research was prioritized. These two main findings establish our hypothesis that practices of administering the ODP laid the programme open to tension between the implementation efforts and the effectiveness study encountered right from the beginning. However, the results provided us with two entry points to discuss the preferable measures of the managerial and executive practices enabling a hybrid design programme and overcoming resistance to change.

A programme theory is an individual compilation of beliefs as to what a programme might achieve and by what means [17]. These beliefs determine the practical actions that the programme administrators will take. While building an evidence-based programme theory, the heuristic ideas are tested and complemented according to some appropriate framework or model [7]. In an optimal case, the programme theory will be resilient and elaborated in early collaboration with the intended programme addressees [17]. Contrary to this, the ODP programme theory was built heuristically only and at a high organizational level and the team leaders were only brought in at a later stage. The Consolidated Framework for Implementation Research (CFIR) is a determinant framework that provides a panel of 39 evidence-based factors, disposed under five domains, impacting the success of an innovation implementation [5, 36]. Reflected against the CFIR, the ODP programme theory ignored the determinants of 'tension for change', 'learning climate' and 'leadership engagement'. Taking these into

account would have induced early collaboration with both team leaders and frontline therapists to pursue a communal specification of the ODP. Indeed, early collaboration may initially cause the start-up of a programme to be more complex and time-consuming and, consequently, require more resources. However, such investments may be recouped later on in terms of less resistance and smoother-running programme [2, 14, 37].

Coherence in communication and executive actions is of paramount importance. Regarding the ODP, the fundamental lack of coherence emerged in terms of the question of the primary goal. This is closely related to the lack of early collaboration between different stakeholders reported in the previous paragraph. The ODP was communicated as being essentially an EBT implementation programme. However, the mode of preparation caused the target teams to regard it primarily as an effectiveness study. Inducing the largest unit to participate primarily to ensure the strength of the effectiveness study and ignoring the first criterion of inviting the units, i.e. the readiness for change, conveyed a non-verbal message inconsistent with what had initially been articulated. Moreover, towards the end of the ODP, satisfying the patient count needed for the effectiveness study over-rode the idea of implementation. These phenomena also caused and exacerbated misunderstandings between the various stakeholders. In spite of this, one team found the ODP to be consistent with their own developmental efforts in the past, which was also apparent in their positive readiness for change. This led them to the conclusion that the ODP provided them with an opportunity to improve their professional capability, which, in turn, supported their cognitive participation in the ODP [34]. The negative experience arose from the conviction that connecting the implementation of two EBTs and their effectiveness study was too much, which exacerbated an already unreceptive climate. This fuelled the perception that the two arms of the ODP were in competition with each other, which culminated in a sense of administrative pressure. Furthermore, this caused frustration and rejection among the staff, which can be seen as negative manifestations of cognitive participation and collective action according to NPT [34].

Studying the effectiveness of an EBT in connection with its implementation programme serves as a clinical quality control and ensures movement in the right direction [1, 10, 18, 21]. This was also one reason for the hybrid design in the ODP. Additionally, the effectiveness study was assumed to prompt the therapists to actively adopt the EBTs and thus ensure the accumulation of a sufficient amount of clinical practice for acquiring skills in the EBTs. Consequently, in principle, the implementation programme had priority. However, the ODP was inherently contradictory in terms of the priority order of the two objectives loaded on it, which caused confusion. Such a situation was likely to lead to a perception that the different objectives were actually competing against each other [10]. Adjusting the ODP as a whole with respect to the teams' varying reactions regarding the implementation climate would also have entailed adjustments in administering the effectiveness study.

Strengths and limitations

We reached all but one out of the intended informants since we accepted other ways of providing information than only individual attendance at the FGIs, which ensured obtaining a wide range of opinions. On the other hand, one more iteration with both FGs and inviting a third focus group from the frontline therapists would have provided us with richer data. Also, in not transcribing the interviews, we deviated from the conduct of the conventional qualitative interview study. We made this decision as we were interested in the data verbally articulated, not the non-verbal data. These restrictions enabled us to keep the research process within our resources. In spite of these limitations, we consider that we reached our goal to scrutinize the social processes related to the ODP and thus identify the risks inherent in conducting an effectiveness study in connection with an implementation programme. We state that the NPT was an appropriate tool for the purpose. In addition, we extended the existing knowledge about the need to ensure early collaboration with every stakeholder group.

Fidelity of the data

Special attention was paid to the general atmosphere during the FGIs and to ensuring that the data articulated on the questions of interest was clearly expressed [38]. During the interviews, a free and frank dialogue was achieved, where both disagreement and consensus within and between the groups were accepted. A report on each FGI was written only a few days after the interview and sent for confirmation to each participant in the FGI concerned. All reports were approved as such. In addition, the facilitator checked the reports by watching the videotaped interviews and no new substantive information was detected although some amplificatory and descriptive details, e.g. quotations, were indeed picked up. The foregoing serves to verify the true correspondence between the essential contents of the FGIs and the raw data. In addition, the members of the FG1 reviewed the present results section, which was amended according to the feedback.

Conclusion

Early, open collaboration with all intended stakeholders for pursuing a communal specification, i.e. a shared understanding, about the programme is the first action programme administrators should take on launching an EBT implementation programme. This has a direct link to the programme theory about what the programme has the potential to reach and how. Early collaboration would have

improved the mutual understanding among the stakeholders and helped the administrators to take all relevant aspects into account. Congruence between what the programme administrators communicate and what they actually do is the second thing to be strictly adhered to throughout the programme. This is crucial to avoid confusion regarding the ultimate mission of the programme. Hybrid design programmes have the potential to achieve quality-controlled outcomes in implementing health care innovations or reforms. However, they require careful attention to keeping the balance consistent between the programme's primary mission and the effectiveness study. This and early collaboration are principles the clinical managers and programme executives should adopt to enable the implementation of health care innovations or reforms and to overcome resistance to change.

Supplementary information

The online version contains supplementary material available at https://doi.org/10.1186/s43058-020-00090-w.

Additional file 1. The authors' professional relations to ODP, the organisation and each other.

Additional file 2. The 32-item checklist of consolidated criteria for reporting qualitative studies (COREQ).

Additional file 3. Descriptions and rationale behind of two instruments.

Additional file 4. The interview guide for the first interviews of Focus Groups 1 and 2 and the process of deriving of the guide (Table A). The interview guide for the second interview of Focus Group 1 (Table B).

Additional file 5. Coding frame according to Normalization Process Theory.

Abbreviations

BA: Behavioural activation; COREQ: 32-item checklist of consolidated criteria for reporting qualitative studies; EBT: Evidence-based treatment; FG: Focus group; FGI: Focus group interview; MI: Motivational interviewing; NPT: Normalization Process Theory; ODP: Ostrobothnia Depression Programme; ODS: Ostrobothnia Depression Study; ODS-I: Ostrobothnia Depression Study related Implementation Programme; FG 1: Focus group 1; FG 2: Focus group 2; FGI 1.1: First interview with FG 1; FGI 1.2: Second interview with FG 1; FGI 2: Interview with FG 2

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Authors' contributions

LHL designed the present study in close collaboration with OK and AL. In addition, LHL led the data collection, prepared the raw data, performed the qualitative analysis and also made the preliminary interpretation of the data. LHL also wrote the manuscript. ML was closely involved in the data collection, the raw data preparation and its analysis and interpretation. In addition, ML reviewed several versions of the manuscript. OK and AL were also informants in the study, and according to the study protocol, they contributed to the interpretation of the data. In addition, OK reviewed several versions of the manuscript. More detailed information on the authors' professional relations to ODP, the organization and each other is presented in Additional File 1. The authors read and approved the final manuscript.

Authors' information

Authors are introduced in Additional File 1: The authors' professional relations to the ODP, the organization and each other.

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Availability of data and materials

The original datasets generated and analysed during the present study are not publicly available due to the requirement to preserve confidentiality. However, the final narrative about the OPD, that is the raw data, is available from the corresponding author on reasonable request. The raw data is in Finnish. We made the English translation during the fourth step of the analysis, i.e. when extracting the results.

Ethics approval and consent to participate

According to the principles agreed on in the South Ostrobothnia Hospital District, this case study of the ODP was exempt from ethical approval as the work was primarily intended to improve regional care through the implementation of EBTs and by using personnel members as informants. All members of the study group gave their verbal consent to participate in the study.

Consent for publication

All members of the study group gave their verbal consent to the publication of the analysed data.

Competing interests

All authors were permanently employed in the main target organization of the ODP. Also, they had various professional relations with each other. These are disclosed in more detailed in Additional File 1.

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Publisher's Note

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Additional File 1

The authors' professional relations to ODP, the organisation and each other

The first and second authors, LHL and ML, were not involved in the design or execution of the ODP. LHL is the main researcher of the present study. He is an MD, specialist in psychiatry and a PhD student. He had formerly made a career as a general practitioner in a public health care centre and within occupational health care. During those years, he became interested in organizational psychology and in the management of organizational change. ML is a collaborating researcher. She is a registered nurse and holds a PhD in nursing science. During the ODP, she was employed as a nursing director on the units engaged in the programme. Her everyday work involved close collaboration with the clinical director of the psychiatric department.

The third and fourth authors, AL and OK, were both closely involved in the design and execution of the ODP. AL is the clinical head of the psychiatric department. He was the manager responsible for the ODP and also a participant in FG1 as an interviewee. OK is a professor of psychiatry. He is employed both in Tampere University and Ostrobothnia Hospital District. OK was the principal designer and programme executive of ODP and also a participant in FG1 as an interviewee.

The first author, LHL collaborates closely with AL and OK. In his everyday clinical work, LHL is directly subordinate to AL. In turn, OK was the main trainer of LHL during his residency in psychiatry and OK is also the supervisor of LHL's doctoral research, of which the present study forms part. We have identified the reflexive risks that the depicted relationships pose to the reliability of the study. Therefore, we have had several open conversations about the issue in an attempt to mitigate that risk.

Consolidated criteria for reporting qualitative studies (COREQ): a 32-item checklist

Adopted form Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research: A 32-item checklist for interviews and focus groups. Int J Qual Heal Care. 2007;19(6):349–57.

No Item	Guide questions/description	Reported on page
DOMAIN 1: RESEARCH TEAM AND REFLEXIVITY		
Personal Characteristics		
1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	7 (Table 2)
2. Credentials	What were the researcher's credentials? *E.g. PhD, MD*	Additional File 1
3. Occupation	What was their occupation at the time of the study?	8 (Setting)
4. Gender	Was the researcher male or female?	Additional File 1
5. Experience and training	What experience or training did the researcher have?	Additional File 1
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	8 (Setting)
7. Participant knowledge of the interviewer	What did the participants know about the researcher? *e.g. personal goals, reasons for doing the research*	8 (Setting), Additional file 1
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? *e.g. bias, assumptions, reasons and interests in the research topic*	Additional File 1
DOMAIN 2: STUDY DESIGN		
Theoretical framework		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? *e.g. grounded theory,*	9-10 (Methods), Additional File 3

	discourse analysis, ethnography, phenomenology, content analysis	
Participant selection		
10. Sampling	How were participants selected? *e.g. purposive, convenience, consecutive, snowball*	8 (Setting)
11. Method of approach	How were participants approached? *e.g. face-to-face, telephone, mail, email*	8 (Setting)
12. Sample size	How many participants were in the study?	8 (Setting)
13. Non-participation	How many people refused to participate or dropped out? Reasons?	8-9 (Setting)
Setting		
14. Setting of data collection	Where was the data collected? *e.g. home, clinic, workplace*	N/A
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	N/A
16. Description of sample	What are the important characteristics of the sample? *e.g. demographic data, date*	7 (Table 2), 8 (Setting)
Data collection		
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	7 (Table 2) 10 (Setting),
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	8 (Setting), 9 (Figure 2)
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	8 (Setting), 18 (Fidelity of the data)
20. Field notes	Were field notes made during and/or after the interview or focus group?	7 (Setting)
21. Duration	What was the duration of the interviews or focus group?	8 (Setting)

22. Data saturation	Was data saturation discussed?	17 (Strengths and limitations)
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	9 (Figure 2), 18 (Fidelity of the data)
DOMAIN 3: ANALYSIS AND FINDINGS		
Data analysis		
24. Number of data coders	How many data coders coded the data?	10 (Qualitative content analysis)
25. Description of the coding tree	Did authors provide a description of the coding tree?	Additional File 5
26. Derivation of themes	Were themes identified in advance or derived from the data?	9 (Setting)
27. Software	What software, if applicable, was used to manage the data?	11 (Qualitative content analysis)
28. Participant checking	Did participants provide feedback on the findings?	9 (Figure 2), 18 (Fidelity of the data)
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? *e.g. participant number*	N/A
30. Data and findings consistent	Was there consistency between the data presented and the findings?	10-11 (Qualitative content analysis)
31. Clarity of major themes	Were major themes clearly presented in the findings?	11-14 (Results)
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	11-14 (Results), 16-17 (Discussion)

DESCRIPTIONS AND RATIONALE BEHIND OF TWO INSTRUMENTS

Revised Socratic Approach for Health Technology Assessment

The Revised Socratic Approach for Health Technology Assessment is a comprehensive panel of questions intended to render a structured assessment of possible socioethical influences that the implementation of a health technology of interest may bring in or has already done in order to inform those responsible for decisions on them (1). It consists of seven basic questions, which are further broken down into thirty-three explanatory questions. The basic questions encompass the following domains related to the target technology: the target problem and group; ethical, cultural and societal challenges; challenges with structural changes; issues of characteristics; aspects of stakeholders; issues of the assessment itself; possible additional issues. It is aimed at eliciting reflexive dialogue between stakeholders and/or serving as a checklist for gathering relevant information. It is not an implementation theory or framework, nor a tool for performing a qualitative analysis.

According to World Health Organization, health technologies may be material or immaterial applications to solve health related problems (2). Thus, we deem the Revised Socratic Approach for Health Technology Assessment a relevant tool for gathering socioethical information on the influence of implementation programmes in health care context.

Normalization Process Theory

Normalization Process Theory (NPT) provides concepts for perceiving and explaining social processes intended to introduce new practices into routine use in the context of work (4,5). The term 'normalization' refers to a process through which a new practice is incorporated or institutionalized into a routine practice sustainably among the personnel of an organisation. It divides the process into three facets: implementing, embedding and integrating. Furthermore, NPT defines four mechanisms through which the process is operationalized, namely coherence, cognitive participation, collective action and reflexive monitoring. These are described in our coding frame for the qualitative content analysis in Table A, Additional file 5.

The NPT is aimed at being utilized in different phases and roles in implementing health technologies, implementation trials and evaluation of implementation programmes (5), which typically are complex processes in nature. We applied the NPT on building up the frame of coding and analysis as well as interpreting the findings.

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Case study of ODP_Lindholm et al.
Additional File 4

Table A. Formulation of the interview guide for the first interviews of focus groups 1 and 2.

Topic	**Original basic question of Revised Socratic Approach**	**Original explanatory question of Revised Socratic Approach**	**Reformulated guiding question for the present study**	***Additional guidance for the facilitator***
Motives and reasoning behind the programme	5. What are the moral issues related to stakeholders?	Q21 What are the interests of the producers of technology (industry, universities)?	Q21 Why did the programme launchers', ultimately, want to carry out the programme? What were the fundamental motives and ambitions underlying the programme?	*Identify possible connections to interviewees' professional and the organisation's values?*
	6. What are the moral issues related to the assessment of the health technology?	Q30 Are there related or analogous technologies that have not been assessed? (Why not?)	Q30 Would there have been alternative ways to achieve the objectives set for the programme? If so, were they considered? Why were they set aside?	*Identify possible references to the organisation's Administrative Regulations, the Strategy and the Handbook of Management.*
Management of the programme	2. What are the ethical, social, cultural, legal and religious challenges related to the health technology?	Q6 Does the technology challenge social or cultural values, institutions, or arrangements or does it affect religious convictions?	Q6 How well does the operational realisation of the programme match the organisation's values and normal managerial practices?	*Review the structure of the managerial line organization.*

Case study of ODP_Lindholm et al.
Additional File 4

(Continues) Management of the programme	3. What are the moral challenges with structural changes related to the health technology?	Q12 Does the technology in any way challenge or change the relationship between patients and health care professionals or between health professionals?	Q12 Does the way of executing the programme put the personal relationships to the test within the managerial line? Or what about the personal relationships inside the involved teams?	*Review the factual realisation of the programme (designing process, programme plan, recruiting the teams, operational management ect.). Promote the conversation about these issues.*
	4. What are the moral issues related to the characteristics of the health technology?	Q15 Is the symbolic value of the technology of any moral relevance? (Prestige, status?) May this change as a result of the health technology?	Q15 Did the way of realising the programme comply with the regular managerial practices? Did the way of realising the programme somehow affect the performance of the managerial line, or, conversely,, did some phenomena within the managerial line affect the realisation of the programme?	
Perspective of the participating units	2. What are the ethical, social, cultural, legal, and religious challenges related to the health technology?	Q8 What are the morally relevant *consequences* (benefits and harms) of the implementation, use or withdrawal of the technology? (In particular from a patients' perspective). How should the harms be balanced against the benefits? Are there alternatives?	Q8 What possible positive or negative consequences has the way of realising the programme yielded in the involved teams (looked from their point of view)? What measures could have amplified the positive impacts and reduced the negative ones? Would there have been alternative ways to operate?	
	5. What are the moral issues related to stakeholders?	Q20 How does the technology contribute to or challenge or alter health professional's autonomy?	Q20 How did the way of realising the programme possibly affect the autonomy of the personnel involved? Increased, decreased or altered some other way? Or what about the autonomy of the units involved?	

Interest of the evaluators	6. What are the moral issues related to the assessment of the health technology?	Q28 What are the interests of the people participating in the technology assessment?	Q28 Why is the programme evaluated? What evaluation related interests do the members of the present focus group have?	
Quick vision on future developments			Vision on future developments.	*Ask the group to imagine the status of the topic after about 1-5 years. This theme is weighed more at the second interview of focus group 2.*

Table B. The interview guide for the second interview of Focus Group 1 (FG1).

Part	**Course of the interview**	**Guidance for the facilitator**	***Additional guidance***
A	Reviewing of the report on FGI1.1 ↓ Reflective conversation about the report	Read the report section by section and elicit conversation, finding successes and troubles.	*During their second interview the FG1 is gradually directed to review both previous interview reports (FGI1.1 and FGI2) in an integrative way and infer possible future implications.* *The idea is to involve the FG1 with the analysis of ODP processes instead of being only a source of data collection.*
B	Introducing the report on FGI2 ↓ Reflective conversation about the report	Read the report section by section and elicit conversation, finding successes and problems.	
C	Scrutinizing reports on FGI1.1 and FGI2 together ↓ What future implications can be inferred?	What do these two reports tell us about the realization of the ODP? Invite the group to elaborate on measures for making the future developments better.	

FGI1.1 = first interview with FG1; FGI2 = interview with Focus Group 2; ODP = Ostrobothnia Depression Programme.

Case study of ODP_Lindholm et al.
Additional File 5

Table. Coding frame according to Normalization Process Theory (NPT)*.

Main category (core construct of NPT)	**Subcategory (component of core construct of NPT)**
Coherence is the sense-making work that people do individually and collectively when they are faced with the problem of operationalizing some set of practices.	**Differentiation** Sense-making work is to understand how a set of practices and their objects are different from each other. **Communal specification** This refers to how people working together build a shared understanding of the aims, objectives and expected benefits of a set of practices. **Individual specification** This refers to need for participants to do things that will help them understand their specific tasks and responsibilities around a set of practices. **Internalization** This refers to efforts people make to understand the value, benefits and importance of a set of practices.
Cognitive participation is the relational work that people do to build and sustain a community of practice around a new technology or complex intervention.	**Initiation** When a set of practices is new or modified, a core problem is whether or not key participants are working to drive them forward. **Enrolment** Participants may need to organize or reorganize themselves and others in order to collectively contribute to the work involved in new practices. **Legitimation** An important component of relational work around participation is the work of ensuring that other participants believe it is right for them to be involved, and that they can make a valid contribution to it. **Activation** Once it is underway, participants need to collectively define the actions and procedures needed to sustain a practice and to stay involved.

Collective action is the operational work that people do to enact a set of practices, whether these represent a new technology or complex healthcare intervention.	**Interactional workability** This refers to the interactional work that people do with each other, with artefacts, and with other elements of a set of practices when they seek to operationalize them in everyday settings. **Relational integration** This refers to the knowledge work that people do to build accountability and maintain confidence in a set of practices and in each other as they use them. **Skill set workability** This refers to the allocation work that underpins the division of labour that is built up around a set of practices as they are operationalized in the real world. **Contextual integration** This refers to the resource work - managing a set of practices through the allocation of different kinds of resources and the execution of protocols, policies and procedures.
Reflexive monitoring is the appraisal work that people do to assess and understand the ways that a new set of practices affects them and others around them.	**Systematization** Participants in any set of practices may seek to determine how effective and useful it is for them and for others, and this involves the work of collecting information in a variety of ways. **Communal appraisal** Participants work together - sometimes in formal collaboratives, sometimes in informal groups to evaluate the worth of a set of practices. They may use many different means to do this drawing on a variety of experiential and systematized information. **Individual appraisal** Participants in a new set of practices also work experientially as individuals to appraise its effects on them and the contexts in which they are set. From this work stem actions through which individuals express their personal relationships to new technologies or complex interventions. **Reconfiguration** Appraisal work by individuals or groups may lead to attempts to redefine procedures or modify practices - and even to change the shape of a new technology itself.

* http://www.normalizationprocess.org (read 7th June 2017).