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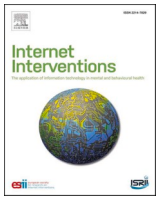

The influence of organizational models on the implementation of internet-based cognitive behavior therapy in primary care: A mixed methods study using the RE-AIM framework

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ABSTRACT

Background: Internet-Based Cognitive Behavioral Therapy (iCBT) holds great potential in addressing mental health issues, yet its real-world implementation poses significant challenges. While prior research has predominantly focused on centralized care models, this study explores the implementation of iCBT in the context of decentralized organizational structures within the Swedish primary care setting, where all interventions traditionally are delivered at local Primary Care Centers (PCCs).

Aim: This study aims to enhance our understanding of iCBT implementation in primary care and assess the impact of organizational models on the implementation's outcome using the RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance) framework.

Method: A mixed-methods research design was employed to identify the factors influencing iCBT implementation across different levels, involving patients, therapists and managers. Data spanning two years was collected and analyzed through thematic analysis and statistical tests. The study encompassed 104 primary care centers, with patient data (n = 1979) sourced from the Swedish National Quality Register for Internet-Based Psychological Treatment (SibeR). Additionally, 53 iCBT therapists and 50 PCC managers completed the Normalization Measure Development Questionnaire, and 15 leaders participated in interviews.

Results: Our investigation identified two implementation approaches, one concentrated and one decentralized. Implementation effectiveness was evident through adherence rates suggesting that iCBT is a promising approach for treating mental ill-health in primary care, although challenges were observed concerning patient assessment and therapist drift towards unstructured treatment. Mandatory implementation, along with managerial and organizational support, positively impacted adoption. Results vary in terms of adherence to established protocols, with therapists working in concentrated model showing a significantly higher percentage of registration in the quality register SibeR (X^2 (1, N = 2973) = 430.5774, p = 0.001). They also showed significantly higher means in cognitive participation (Z = −2.179, p = 0.029) and in reflective monitoring (Z = −2.548, p = 0.011).

Discussion: Overall, the study results demonstrate that iCBT, as a complex and qualitatively different intervention from traditional psychological treatment, can be widely implemented in primary care settings. The study's key finding highlights the substantial advantages of the concentrated organizational model. This model has strengths

Abbreviations: PCAM, Primary Care Area Manager; PCC, Primary Care Centre; PCCM, Primary Care Centre Manager; RE-AIM, Implementation framework: Reach, Effectiveness, Adoption, Implementation, Maintenance; RIS, Regional Implementation Support; RPM, Responsible for Psychological Management; SibeR, National quality register for internet-based psychological treatment; SoB, Online national support and treatment platform; NoMAD, The Normalization MeAsure Development questionnaire.

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in sustainability, encourages reflective monitoring among therapists, the use of quality registers, and enforces established protocols.

Conclusion: In conclusion, this study significantly contributes to the understanding of the practical aspects associated with the implementation of complex internet interventions, particularly in the context of internet-based cognitive-behavioral therapy (iCBT). The study highlights that effective iCBT integration into primary care requires a multifaceted approach, taking into account organizational models, robust support structures, and a commitment to maintaining quality standards. By emphasizing these factors, our research aims to provide actionable insights that can enhance the practicability and real-world applicability of implementing iCBT in primary care settings.

1. Background

Integration of psychological interventions in primary care is crucial for effectively addressing the mental health needs of the population (WHO, 2022). In Swedish primary care there is an increased demand on administering evidence-based interventions for mental health disorders within local Primary Care Centers (PCCs), alongside other tasks, following a decentralized organizational structure. Sweden has been at the forefront of developing research on internet based cognitive therapy (iCBT) (Titov et al., 2018) and implementing them in regular care, with one of the world's first successful implementations occurring in 1999 (Andersson et al., 2019; Kaldo-Sandström et al., 2004) and the establishment of the Internet Psychiatry Unit in Stockholm in 2008 (Titov et al., 2018). Several studies have demonstrated comparable treatment effects of iCBT to face-to-face cognitive behavioral therapy (CBT) (Hedman-Lagerlöf et al., 2023; Carlbring et al., 2018). However, there is limited research focusing on designing successful iCBT implementations in various contexts (Folker et al., 2018; Titov et al., 2018), with most studies primarily describing structures and outcomes for units adopting a centralized care model. The centralized model involves care conducted in a unit specialized in iCBT, with its own management, where patients only receive digitalized treatment and not any or very little other types if care, and often in parallel to their other care arrangements (Folker et al., 2018).

Since 2016, efforts have been made in Sweden to broaden the implementation of iCBT into primary care (Swedish Association of Local Authorities and Regions (SALAR), 2021). iCBT for common mental health disorders treated in primary care can be described as a complex intervention that differs qualitatively from traditional psychological treatment in several aspects. Although the goal of treatment and the therapeutic models, methods, and assumed mechanisms are basically the same, they differ in their respective mechanisms of up-take, accessibility, delivery, therapeutic alliance formation, and modality of guidance. Complex interventions, such as the implementation of iCBT, involve and depend on adopting multiple interacting components, such as the intervention in itself, as well as organizational structure and training of professionals (Craig et al., 2008). Seiferth et al. (2023) highlight the importance of evaluating the implementation of the digital intervention in real-world settings. The present study explores the process of implementing iCBT in Swedish primary care. Implementation science has been recognized as essential in ensuring the implementation of valuable research findings that can improve public health (Eccles and Mittman, 2006). Frameworks from this field can aid in understanding how complex interventions can be effectively launched and sustained in health care. However, there is limited research focusing on designing successful iCBT implementations in various contexts and with different organizational models (Folker et al., 2018; Titov et al., 2018). A comparative case study examining experiences from centralized models in five European countries identified four common themes perceived as promoting factors for iCBT: integration within a mental health organization, effective recruitment of self-referred patients, favorable working conditions for therapists with stable work processes, and measures taken to ensure long-term sustainability (Folker et al., 2018). Another study focusing on success factors for centralized iCBT units highlighted the importance of having stable organizational management for IT and clinics with strong connections to health care and universities, as well as the development of quality systems to monitor treatment progress and outcomes (Titov et al., 2018). In Swedish primary care, the tradition is to deliver all interventions at the local PCCs alongside other tasks, following a decentralized organizational structure. The approach of a decentralized organizational structure, delivering all interventions at the local PCCs, has been tested for implementing iCBT in Swedish primary care settings, showing reduced level of symptoms after treatment, but no superiority compared to treatment as usual (Kivi et al., 2014). A qualitative study on the primary care clinicians acting as iCBT-therapists in the trial identified an overall positive attitude to iCBT, but also several barriers to implementation and a wish to adjust the format of delivery for iCBT to a more blended approach assumed to fit primary care better (Kivi et al., 2015). In their exploration of therapists' experiences in conducting iCBT compared to face-to-face CBT, Bengtsson et al. (2015) discovered that iCBT therapists noted an increased level of manualisation in therapy, and greater control over their work time. Andersson et al. (2019) emphasizes the lack of documentation outlining the implementation of iCBT based on a rigorous scientific framework for implementation research, thereby underscoring the need for a more robust foundation grounded in implementation research principles.

The RE-AIM framework provides a systematic approach for evaluating implementation. Its goal is to capture essential dimensions that increase the likelihood of successful implementation and sustainability in various environments. In the RE-AIM framework, the following dimensions are used to assess the impact of implementation: 1. Reach (participation of the target group in the program), 2. Effectiveness (outcomes after program completion), 3. Adoption (acceptance of the program by relevant actors), 4. Implementation (adherence to the program protocol), and 5. Maintenance (sustainability over time) (Glasgow et al., 1999). As previously mentioned, efforts have been made in Sweden to broaden the implementation of iCBT into primary care, including the region of Västra Götaland. The implementation of iCBT was part of a regional implementation effort, starting in 2017. The accompanying research project, the current study, diligently tracked and examined the progress of this implementation with both prospective data from 2018 and cross-sectionally collected data, between 2020 and 2022.

This study seeks to enhance the understanding of the practical implementation of internet-based cognitive-behavioral therapy (iCBT) within primary care settings. Specifically, it aims to investigate and address key factors outlined in the RE-AIM framework, focusing on organizational models, support structures, and quality work. By examining the complexities associated with iCBT implementation, the research aims to contribute valuable insights that can inform effective strategies for integrating iCBT into primary care, emphasizing real-world applicability and sustained impact. The research questions were:

1. How has the work of implementing a new type of intervention in primary care, iCBT, been organized within the primary care areas?
2. If one more than one type of model is identified; How have the chosen organizational models affected the outcome of the implementation of iCBT?

2. Methods

The study obtained approval from the Swedish Ethical Review Authority (Reference Number: 2020-05795).

2.1. Study design

This study employed a longitudinal convergent mixed methods design (Fetters et al., 2013) to comprehensively investigate the implementation of iCBT in primary care. By integrating both quantitative and qualitative methods, the aim was to achieve a more profound understanding of the phenomenon under investigation than could be attained through a solely quantitative approach.

2.2. Complex intervention

The complex intervention in the current study encompassed an organizational strategy, iCBT training for therapists, establishment of care processes, technical infrastructure and requirements for follow-up of iCBT treatments.

2.2.1. Context

The iCBT implementation took place in the public primary care system in the region of Västra Götaland. The administrative management was led by the primary care director and primary care area managers (PCAM). The region consisted of eight primary care areas, each comprising eight to 17 PCCs (Fig. 1).

These areas encompassed sparsely populated regions, small towns, and the second largest metropolitan area in Sweden, Gothenburg. For a more in-depth description of the context, see Appendix 1.

2.2.2. Overall implementation strategy for the entire public primary care

All 104 PCCs included in the study participated in the implementation of iCBT. To facilitate increased usage of iCBT across all PCCs, a regional implementation support team (RIS) was established and was accessible and equal for all PCCs. All PCCs *benefited from equivalent possibility to regional implementation support* The support team had contact with PCAM, and the Responsible for psychological management (RPM) or an appointed person responsible to discuss the implementation and organization of iCBT within the area, presenting various possible ways to organize the work. For a more in-depth description of the overall implementation strategy see Appendix 2.

2.2.3. iCBT programs and patient recruitment

iCBT was implemented as an initial step in the care pathway for patients who reported mental health issues as their primary concern. General practitioners (GPs), nurses, social health worker (in Swedish: kurator) or psychologists at the PCC offered iCBT to patients. Prior to enrolling in iCBT, patients underwent video, telephone, or face-to-face assessments to confirm that their conditions or complaints aligned with the content of the available iCBT programs and that they were motivated to pursue this form of care. Psychological assessments were conducted either at the PCC or at a dedicated unit after referral from the PCC. The available iCBT programs were designed to treat patients with depression, insomnia, or various anxiety disorders. Patients who were assessed not to benefit from iCBT were offered face-to-face treatment at their PCC or, if necessary, referred for psychiatric care.

Licensed psychologists, supervised graduate psychologists, licensed psychotherapists, and other licensed professionals with basic psychotherapy training in CBT were eligible to administer iCBT according to regional guidelines. All therapists attended a two-day training on the treatment programs, platform, and care process issues related to recruitment, assessment, and the therapist's role. Two companies, Psykologpartners W&W AB and Livanda AB, provided the content through the secure online national support and treatment platform called SoB, which required secure login. Therapists typically maintained weekly

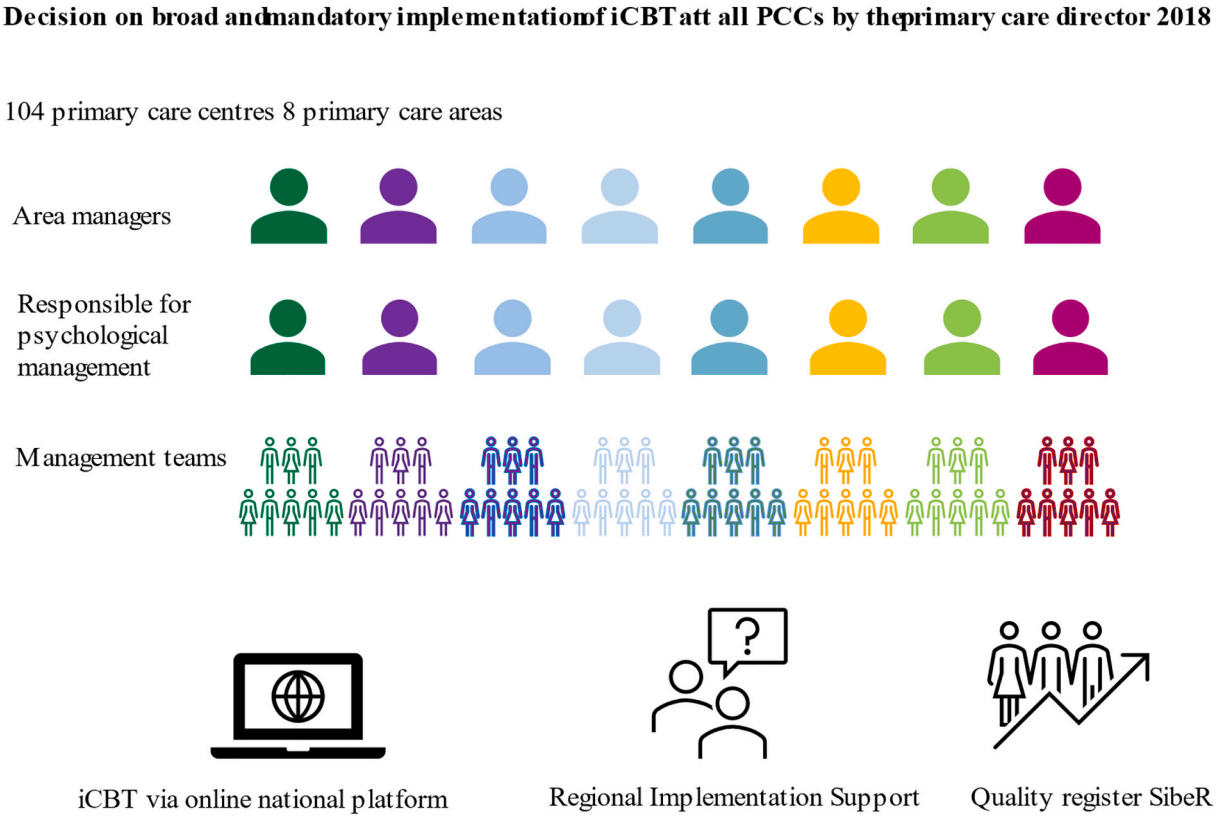

Fig. 1. Context of public primary care.

contact with patients through written messages, telephone calls, or video sessions.

2.3. Study populations

The study included four populations: 1) primary care area managers (PCAMs) and appointed responsible persons, 2) primary care centre managers (PCCMs), 3) iCBT therapists, and 4) patients who received iCBT treatment.

The PCAMs, consisting of seven women and one man, were between 40 and 65 years old. Four of them were physicians, three were nurses, and one was a physiotherapist. The PCAMs determined who, in addition to themselves, would be suitable to answer the interview questions. In total, 16 persons (two from each of the eight primary care areas) were invited to the interview, and 15 responded. The responsible persons were all senior psychologists or therapists. The selection of interviewees was purposive.

A total of 102 PCCMs, who were in charge of the 104 PCCs at the beginning of 2021 (two PCCs shared PCCMs), were invited to answer a survey, and 50 responded. iCBT therapists active in SoB in December 2020 (n = 94) were invited to answer the survey, and 53 responded. Table 1 presents the characteristics of the The Normalization MeAsure Development questionnaire (NoMAD) survey respondents.

Patient data regarding iCBT treatment, such as compliance, completed modules, and health status before and after treatment, were obtained from the Swedish national register for internet-based treatments (SibeR, https://siber.registercentrum.se/) for the period October 2019–September 2021 (n = 1979). The mean age of the patients was 35.5 years (range: 18–81), and 67 % were women. The 12-item WHODAS (Axelsson et al., 2017) was assessed at the beginning of treatment, with a mean disability of 31 % (range: 0–88 %). The overall registration coverage in SibeR was 67 %.

2.4. Procedure and measures

Between February 2021 and January 2022, video interviews were conducted with PCAMs and appointed persons responsible for implementing the intervention. Before the interviews, the participants were given the opportunity to ask questions about the study and were provided with written and oral information on participating. They digitally signed an informed consent form. Half of the interviews were conducted by the second author (MBS), who also served as the RPM and appointed person responsible in one area during the implementation. The remaining interviews were conducted by a trained psychologist under the supervision of MBS. The interviews were semi-structured, based on the RE-AIM framework, and lasted approximately 30 min. Initially, participants were asked to describe the implementation in general, followed by questions regarding promoting and hindering factors (see Appendix 3: Interview Guide). The interviews were audio-recorded and transcribed verbatim.

Table 1
Characteristics of the NoMAD survey respondents.

		iCBT-therapists (n = 53)	PCCM (n = 50)
Sex	Woman	73 % (38)	86 % (43)
Age	≥50 years	33 % (17)	70 % (35)
Years worked at PCC or as PCC manager	≥3 years	69 % (36)	68 % (34)
Years worked with iCBT	≥1 years	75 % (40)	–
Profession	Nurse	8 % (4)	56 % (28)
	Physician	–	18 % (9)
	Psychologist	73 % (38)	–
	Social worker	15 % (8)	–
	Other	6 % (3)	26 % (13)

NoMAD = The Normalization MeAsure Development questionnaire.
PCCs = Primary Care Centers.
PCCM = Primary Care Center Manager.

To measure the attitudes among iCBT therapists and PCAMs, the Normalization MeAsure Development questionnaire (NoMAD) survey (Finch et al., 2018) was utilized. The NoMAD survey was originally developed to capture how new health care interventions integrates into everyday practice and the Swedish translation was adapted to the context (Elf et al., 2018). It consists of three sections: A. demographic questions, B. general questions about the intervention, and C. 20 detailed questions about the intervention that is divided into four subscales.

The internal consistency of the NoMAD survey was assessed using Cronbach's alpha, which indicated high levels of reliability in the current study (α = 0.91). Three out of the four subscales for therapists reached satisfactory threshold levels: Cognitive Participation (α = 0.73), Collective Action (α = 0.71), and Reflective Monitoring (α = 0.81). One subscale, Coherence, did not reach satisfactory levels (α = 0.68). For PCAMs, two subscales in the NoMAD survey reached satisfactory Cronbach's alpha: Coherence (α = 0.79) and Cognitive Participation (α = 0.79). However, two subscales did not reach satisfactory levels: Collective Action (α = 0.6) and Reflective Monitoring (α = 0.68). A five-point Likert scale ranging from strongly agree (4) to strongly disagree (0) was used. To simplify the tables for section C, the answers were condensed into three categories: agree, neutral, and disagree. Additionally, all “not relevant” responses were grouped together as “not relevant” in the table.

Deidentified patient data on compliance, completed modules and patients' health status prior to treatment were collected from SibeR. Patients' health status was assessed with the 12-item WHODAS (Axelsson et al., 2017) and specific measurements for specific diagnosis were used, MADRS-S (Fantino and Moore, 2009) for depression and GAD -7 (Spitzer et al., 2006) for anxiety. The therapist activated AUDIT (Bergman and Källmén, 2002) when suitable. Patients were provided with information about the quality register and gave their consent to participate before starting iCBT treatment. Since October 2019, therapists had access to specific journal templates for iCBT and semi-automatic data transfer from these templates to SibeR. Patient data regarding the number of patients listed at the PCCs, diagnoses, and codes used for registering interventions were requested from a regional health care database.

2.5. Data analysis

2.5.1. Qualitative analysis

The first author, EG, a licensed psychologist and member of the implementation support team, led the analysis. To ensure robust analysis, a team was formed comprising three co-authors: MBS, a licensed primary care psychologist and RPM; CS, a senior psychiatrist, licensed psychotherapist, and director of SibeR; and SW, a licensed psychologist, associate professor, and RPM. The latter two team members possessed expertise in qualitative analysis. We approached the analysis with a pre-existing understanding and experience of iCBT as an effective therapy in primary care. The qualitative data analysis software NVivo 12 was used to facilitate the analytical process. Thematic analysis, following the framework proposed by Braun and Clarke (2006, 2020), was employed for the qualitative analysis. The analytic process incorporated both inductive and deductive approaches. In the initial inductive phase, the data was encoded without attempting to fit it into any pre-existing scientific framework. In the deductive phase, the RE-AIM framework and our knowledge of organizational models were utilized. We adopted a reflexive approach and generated themes by organizing and interpreting codes around a central organizing concept, as suggested by Braun and Clarke (2019). The analysis process consisted of six steps, which were used as guidelines and flexibly applied to suit the data and research questions, in accordance with Braun and Clarke (2020). For a more in-depth description of the qualitative analysis see Appendix 4.

2.5.2. Quantitative analysis

The statistical analyses were conducted using the Statistical Package for the Social Sciences (version 28). The primary focus of the quantitative analysis was on descriptive statistics. Due to the non-normal distribution of the NoMAD data, a Mann-Whitney *U* test was performed to assess potential differences between the two organizational models for the subscales. Chi-square tests were conducted to assess potential differences in the registration rates in the quality register of SibeR. To investigate change in everyday functioning during the treatment and compare this between organizational models, SibeR-data from participants who had completed all modules, full completers was used. The reason for this non-optimal selection of patients was a pragmatic adaption due to that the post-treatment WHODAS was included in the last module in all programs, and thus only presented to participants completing all modules. A pre-post *t*-test for all patients were used to test change in WHODAS, and a two-way (time x organizational model) mixed model ANOVA was performed to compare the amount of change between treatment completers in the two organizational models. To check if ANOVA was appropriate to use, pre-testing with *t*-tests analyzing differences between the two organizational models among a range of clinical baseline variables was performed.

3. Results

3.1. Identified organizational models and reasons for selection of model

During the analysis, we identified various organizational models characterized by different levels of collaboration in implementing iCBT in the area. To define these models and categorize the areas into two models, we employed data from interviews with PCAMs and appointed persons responsible, therapists' questionnaire responses, as well as our own prior knowledge regarding for example financial factors.

We encountered an organizational model called the *Concentrated* model, which included the following criteria: 1) shared finances for iCBT work, 2) shared care flow for iCBT patients, 3) collective methodological support for iCBT therapists in the area, 4) appointment of a coordinator for iCBT therapists, and 5) therapists perceiving themselves as part of a *Concentrated* iCBT resource. Additionally, we defined another model called the *Decentralized* model, which lacked the above criteria. In both models, therapists had their physical workplace at their own PCCs or worked remotely. To be categorized as either a *Decentralized* or *Concentrated* model, it was necessary to fulfil at least three out of five criteria.

Three primary care areas fulfilled all the criteria for the *Concentrated* model, while three primary care areas fulfilled all the criteria for the *Decentralized* model. One primary care area, categorized as *Decentralized,* had shared finances for iCBT and half of the therapists perceived themselves as part of a *Concentrated* iCBT resource but the three other criteria for *Decentralized* model were fulfilled. One area categorized as *Concentrated* did not have shared finances for iCBT work and common care flow for iCBT patients but the other three criteria for *Concentrated* model were fulfilled. In total, half of the primary care areas were classified as *Concentrated*, responsible for approximately 376,000 listed patients, while the other half were defined as *Decentralized,* responsible for around 389,000 listed patients (Figs. 2 and 3).

The qualitative analysis revealed a theme titled “Reasons for the choice of organization” with two sub-themes: “*Decentralized* organization is feasible and may provide iCBT knowledge to all PCCs” and “*Concentrated* organization may compensate for differences between PCCs” (See Table 3). The reasons for choosing the *Decentralized* model differed from those for the *Concentrated* model.

The *Decentralized* model, which involved therapists located at each PCC and patients following the local patient flow within the PCC, was selected when collaboration with other PCCs and the creation of new collaborative areas were deemed challenging. Administration complexities associated with medical records, finances, and digital contact routes influenced this decision. The availability of sufficient number of therapists (at least two) at each PCC and the therapists' preference to

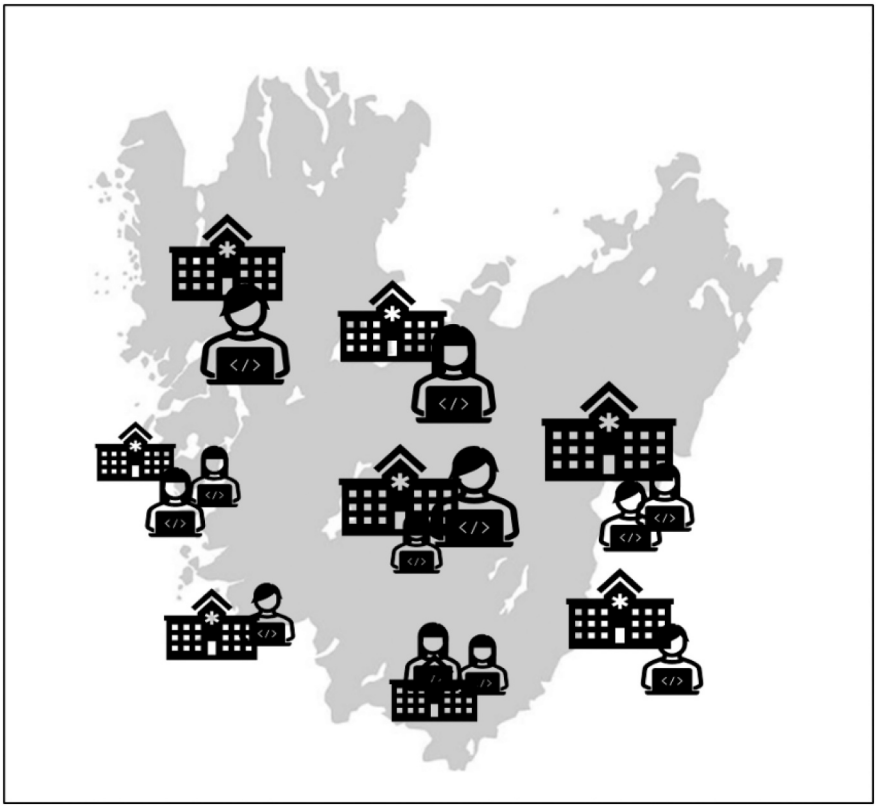

Fig. 2. Decentralized model.

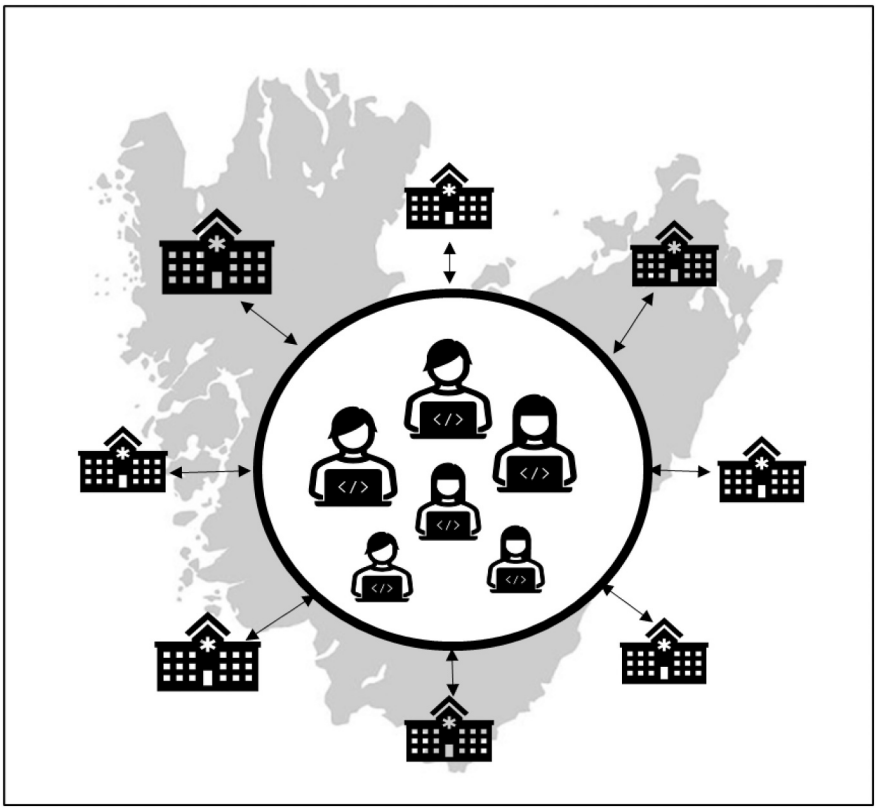

Fig. 3. Concentrated model.

continue traditional psychological treatment alongside iCBT were also considered. The *Decentralized* model aimed to spread iCBT knowledge among numerous therapists in the area. Also, some PCC managers expressed the desire to retain iCBT within their own units due to perceived complications related to patient fees and flows.

> *"But the PCC managers came back and said, no but we've talked to our psychosocial team at the unit and we kind of want to keep it to ourselves because it's, this thing with patient fees and patient flows, they thought it was getting more complicated than to keep it yourself." (Informant 8 –decentralized model)*

The decision to adopt the *Concentrated* model was made by PCAMs and the management team based on previous experiences that highlighted the benefits of concentrating interventions and resources. The *Concentrated* model was believed to be cost-effective, resource-effective, and associated with high-quality care. Additionally, the decision was influenced by the shortage of therapists interested in iCBT at the PCCs. By adopting the *Concentrated* model, there was an opportunity to recruit new therapists who were specifically interested in iCBT. This approach allowed for the consolidation of expertise by organizing multiple therapists into a central team, capable of offering iCBT services to the entire area. Collaboration became the means to meet the requirement of providing iCBT treatment at all PCCs. Therefore, it was decided to cooperate within specific nodes rather than attempting to implement the model across all PCCs. This approach was supported by the understanding that collaboration within the nodes would enhance the implementation effectiveness and feasibility of the *Concentrated* model. Some PCAMs viewed the *Concentrated* model as a temporary solution but their ultimate goal was to have therapists available at each PCC and integrate them into regular patient flows, thus ensuring widespread access to iCBT services.

3.2. Results according to the RE-AIM dimensions

The analyses of the qualitative data obtained from the interviews resulted in five overarching themes and 16 subthemes, which are presented in Table 2. Appendix 5 provides a more detailed breakdown of the data, with 33 categories related to the overarching themes.

3.2.1. Reach

Reach was conceptualized as the proportion of CBT treatments delivered as iCBT. The reach dimension was measured using regional health data to calculate the percentage of listed patients who received a depressive, anxiety or insomnia diagnosis and subsequently received CBT, as well as the percentage of those who received iCBT. Overall, 14 % of CBT treatments were provided as iCBT. In *Concentrated* areas, the proportion was 15 %, while in *Decentralized* areas, it was 13 %. Table 3 shows the reach of patients receiving iCBT in *Concentrated* and *Decentralized* areas between 2019 and 2022.

3.2.2. Effectiveness

In this study, implementation effectiveness was measured by treatment adherence (number of modules) and change in everyday functioning (WHODAS) using data from SibeR. On average, patients in *Concentrated* areas completed 73 %, (SD = 32.5) of the iCBT modules, while patients in *Decentralized* areas completed 71 %, (SD = 34.6). Table 4 provides an overview of effectiveness and implementation, including the proportion of all patients being registered in SibeR, patient characteristics, missing data, completed modules, as well as pre- and post-treatment WHODAS for all patients that completed the treatment.

There were no significant differences among the range of clinical baseline variables, WHODAS, AUDIT, MADRAS-S, and GAD-7, between the two organizational models (p = 0.075–0.797). Treatment completers, i.e. those having finished all modules and also had a post-measure of WHODAS, had a significant improvement in daily functioning ($t[676] = 14.38$, $p < 0.001$) with a medium within-group effect

Table 2
Qualitative analysis: themes, sub-themes, categories.

Themes	Subthemes	Categories
Organization		
Reasons for the choice of organization	Decentralized organization is feasible and may give knowledge of iCBT to all PCCs	• The therapists' wishes and interests guided the choice • iCBT-therapists at all PCCs since it was possible • iCBT-therapists at all PCCs leads to increased knowledge about iCBT • Manage lack of staff and interest
	Concentrated organization may compensate for differences between PCCs	• Enable to offer iCBT at all primary care centers • The management team decided on building a hub • Collaboration in hubs as a temporary solution
Adoption		
Hindering adoption	Organizational conditions	• Insufficient organizational structure for implementation processes • Covid-19 and other implementation projects
	Finding and keeping interested therapists	• Lack of knowledge about treatment of mental illness at the PCCs • Therapists´ resistance to iCBT and to change working methods • Staff turnover and shortage of therapists
	Technology	• Complicated and time-consuming technology for staff • Patients perceive digital care difficult
	Challenges with development work	• iCBT is not integrated with other development work • Uncertainty about how to use the quality register data
Promoting adoption	Management support and organizational support functions	• Decision on mandatory implementation • Commitment of the managers • Area managers´ strategic role • Anchoring plans for implementation with management team • Local ownership and someone who drives forward • Collaboration with the regional implementation support team • Psychology advisors´ operative work essential
	Competence of the staff	• Knowledge about iCBT among staff at the PCCs • Therapists´knowledge and interest
	Digital maturity and availability	• Patients are digitally mature • Patients have access to the technology required
	Positive attitudes towards iCBT	• Many benefits of offering iCBT in primary care • Implementing iCBT was a given decision
Implementation		
Difficulties in the implementation process	Struggling to find an effective assessment model Difficulties to include the right patients Therapists´ drift to unstructured treatment	
Maintenance		
Sustainability	Recruit and keep iCBT therapists	• Follow-up and improvement work • Method support, education, and collegial exchange • Cooperation in hubs facilitates the sustainability • Lack of collaboration contributes to vulnerability
	Measures to secure continued learning	
	The organizational model of iCBT has impact	

Table 3
Reach: patients receiving iCBT in concentrated and decentralized organized areas between 2019 and 2022.

	Concentrated	Decentralized	Total
Number of inhabitants listed in PCCs (n)	376,640	389,070	765,710
Proportion of patients with psychiatric diagnoses[a]	12 %	13 %	12 %
Proportion of patients receiving CBT of those with psychiatric diagnosis[b]	12 %	11 %	12 %
Proportion of patients receiving internet-CBT of those receiving CBT[c]	15 %	13 %	14 %

PCC = Primary Care Centre.
[a] Diagnoses according to ICD-10: F32, F33, F34.1, F40, F40.1, F40.2, F41, F41.1, F41.9, F42, F43, F43.8 A, F45, F51, G47.0, G47.8, G47.9.
[b] Procedure code: du011 = Cognitive behavioral therapy, CBT.
[c] Procedure codes: du011 + zv044 + zv051 = CBT + iCBT + internetdelivered.

size (d = 0.55). There was a significant interaction when the two organizational models were compared, (F[1.676] = 4.76, p = 0.029), showing that patients in the *Decentralized* model improved more than those in the *Concentrated* model, with a small between-group effect size for post-measure (d = 0.23).

3.2.3. Adoption

Adoption of iCBT was conceptualized as the incorporation, motivation, and acceptance of iCBT among therapists and PCCMs. To measure the dimension of adoption, two subscales from the NoMAD tool, Coherence and Cognitive Participation, were used. Therapists working in a *Concentrated* area had a significantly higher mean score in the subscale of Cognitive Participation (Z = −2.179, p = 0.029). For PCCM:s, there was no significant difference between the *Concentrated* and *Decentralized* models in either of the subscales. See Table 5 for the NoMAD answers from therapists and Table 6 for overview of the NoMAD subscales for therapists.

See Appendices 6 and 7 for the answers and overview from PCCMs.

3.2.4. Hindering adoption

The qualitative analysis revealed a theme called “Hindering adoption,” with sub-themes “organizational conditions”, “finding and

Table 4
Effectiveness and implementation: proportion of patients registered in SibeR, patient characteristics, documented follow-up, completed modules and disability.

	Concentrated	Decentralized	Total	sig
Coverage				
Proportion of patients registered in SibeR of those receiving iCBT, % (n)	83 % (1331/1599)	47 % (648/1374)	67 % (1979/2973)	0.001*
Baseline				
Women, % (n)	67 % (887)	68 % (439)	67 % (1326)	
Age, m (sd)	35.4 (11.9)	35.9 (11.8)	35.5 (11.9)	
AUDIT m (sd) (n)	3.6 (4.2) (354)	4.4 (4.3) (129)	3.84 (4.2) (483)	
GAD-7 m (sd) (n)	12.1 (5.1) (715)	11.6 (5) (338)	11.9 (5.1) (1053)	
MADRS-S m (sd) (n)	14 (12.2) (428)	15 (11.8) (300)	14.5 (12) (728)	
WHODAS, m (sd) (n)	31.5 (17.1) (1092)	31.3 (16.7) (448)	31.4 (16.9) (1540)	
End of treatment				
Documented follow-up at end of treatment, % (n)	75 % (994/1331)	69 % (446/648)	73 % (1440/1979)	0.069
Mean percentage completed modules of the programs, % (n)	73 % ($n = 994$)	71 % ($n = 446$)	72 % ($n = 1440$)	
Completers				
Proportion of patients completing all modules (100 %)	37 % (495/1331)	28 % (182/648)	34 % (677/1979)	0.001*
Disability at start of treatment; WHODAS-12, m (sd)	31.0 (17.2) ($n = 495$)	29.2 (15.9) ($n = 182$)	30.6 (16.9) ($n = 677$)	
Disability at end of treatment[a]; WHODAS-12 m (sd)	25.2 (17.8) (n = 495)	21.1 (15.4) ($n = 182$)	24.1 (17.3) (m = 677)	

SibeR: National quality register for internet-based psychological treatment.
WHODAS-12: World Health Organization Disability Assessment Schedule- 12 questions, self-assessment (total scores between 0 and 100).
* Significant at $p = 0.05$.
[a] Treatment completers, i.e. those who finished all modules and had post-measure of WHODAS-12.

retaining interested therapists", "technology", and "challenges with development work". One significant challenge was the difficulty in finding and retaining therapists who were interested in working with iCBT. Therapists' resistance towards iCBT was attributed to their reluctance to change their working methods and uncertainty surrounding the evidence and technological aspects of the approach. This difficulty with technology was suggested as a contributing factor to therapists' resistance towards iCBT, particularly among those who did not perceive the benefits of the new method.

One of the hindering factors was the insufficiently developed organizational prerequisites. The interviewees expressed the need for clearer structures and processes to guide the implementation and achieve the set goals. They emphasized the importance of continuous quality improvement, learning, and updated routines as knowledge about treatment evolves.

"So, it has been an aggravating circumstance that we don't really have organizational structures for how to do large implementation processes. So you have had to invent a little, and a little in each area has had to be invented based on its structure." (Informant 10- concentrated model).

3.2.5. Promoting adoption

The qualitative analysis yielded a theme referred to as "Promoting Adoption," which encompassed the sub-themes "Management Support and Organizational Support Functions," "Competence of the Staff," "Digital Maturity and Availability," and "Positive Attitudes towards iCBT." One factor identified as promoting adoption was the mandatory implementation of iCBT, requiring all managers and employees to contribute towards achieving the set goals. The PCAMs described their role as strategic, involving activities such as planning, initiating, overseeing, and following up on the implementation process. Half of the PCAMs reported establishing the implementation plan by engaging the management team through information sharing and facilitating discussions about the implementation strategy and organization.

In addition to management support, the interviewees highlighted the importance of individuals driving the implementation forward. These individuals could be designated as responsible for the implementation or be therapists with a keen interest in iCBT and a motivation to work with development. Interviewees expressed the need for knowledgeable individuals who could inform, instruct, and inspire both managers and employees.

"I think that someone is needed to sort of run this. Someone or a few in the area who are like the carriers of knowledge and who can like inform, instruct and inspire both managers and employees." (Informant 8 – decentralized model)

Structured support systems were emphasized as crucial for successful implementation. This included the RPMs and RIS. The RPMs provided support during the implementation phase and played a vital operational role in ensuring the smooth flow of work, planning care processes, taking responsibility, and maintaining contact with units and managers. The implementation support (RIS) provided training in iCBT, served as a communication channel for treatment providers, addressed iCBT issues regionally, offered methodological and technical support to managers and staff.

The decision to implement iCBT was made by the administrative management, and managers expressed their internalization of the decision, emphasizing the importance of digitalization to meet future care needs. They recognized the necessity of offering patients' treatment in various forms. Furthermore, several interviewees highlighted the suitability of iCBT for primary care settings, as it facilitated patient flow, particularly when there was a large number of patients per therapist in the primary care context. While iCBT quality improvement was deemed necessary, interviewees stressed the need for integration with existing mental health development structures to ensure success. Some interviewees expressed reservations about creating additional groups or separate entities solely dedicated to iCBT, while instead favouring the integration of quality improvement and development initiatives related to mental illness into the organization's existing practices.

"I'm a little doubtful when people start talking about whether we should create an additional group to work on something, well you know something like that. But I would have liked quality and development work linked to mental illness to be a little more integrated into the other work that is done in our organization (Informant 12- decentralized model).

Regarding the quality register SibeR, some interviewees especially in the *Decentralized* units reported uncertainty about its usage. They had questions regarding how the data can be utilized, the information that can be obtained, and who has access to follow-ups via quality registers.

3.2.6. Implementation

Implementation was conceptualized as the comprehensive process of

Table 5
NoMAD answers from therapists according to organizational model ($n = 53$).

	Conc.	Dec.	Conc.	Dec.	Conc.	Dec.	Conc.	Dec.
	Agree		Neutral		Disagree		Not relevant	
Coherence								
I can see how iCBT differs from usual ways of working	85 % (n = 23)	89 % (n = 23)	15 % (n = 4)	12 % (n = 3)	0,0 %	0,0 %	0,0 %	0,0 %
Staff in this organization have a shared understanding of the purpose of iCBT	**52 %** (n = 14)	**31 %** (*n* = 8)	19 % (n = 5)	23 % (*n* = 6)	22 % (n = 6)	39 % (*n* = 10)	8 % (n = 2)	8 % (*n* = 2)
I understand how iCBT affects the nature of my own work	89 % (*n* = 24)	77 % (*n* = 20)	7 % (n = 2)	15 % (n = 4)	0,0 %	8 % (n = 2)	4 % (n = 1)	0,0 %
I can see the potential value of iCBT for my work	89 % (n = 24)	77 % (n = 20)	11 % (n = 3)	19 % (n = 5)	0,0 %	0,0 %	0,0 %	4 % (n = 1)
Cognitive participation								
There are key people who drive iCBT forward and get others involved	82 % (*n* = 22)	69 % (n = 18)	15 % (n = 4)	19 % (n = 5)	4 % (n = 1)	12 % (n = 3)	0,0 %	0,0 %
I believe that participating in iCBT is a legitimate part of my role	**85 %** (n = 23)	**58 %** (*n* = 15)	15 % (n = 4)	23 % (n = 6)	0,0 %	15 % (n = 4)	0,0 %	4 % (n = 1)
I am open to working with colleagues in new ways to use iCBT	89 % (n = 24)	69 % (n = 18)	11 % (n = 3)	19 % (n = 5)	0,0 %	4 % (n = 1)	0,0 %	8 % (n = 2)
I will continue to support iCBT	**93 %** (*n* = 25)	**62 %** (*n* = 16)	7 % (n = 2)	23 % (n = 6)	0,0 %	8 % (n = 2)	0,0 %	8 % (n = 2)
Collective action								
I can easily integrate iCBT into my existing work	85 % (n = 23)	81 % (*n* = 21)	7 % (n = 2)	8 % (n = 2)	7 % (n = 2)	8 % (n = 2)	0,0 %	4 % (n = 1)
iCBT disrupts working relationships	4 % (n = 1)	8 % (n = 2)	15 % (n = 4)	27 % (*n* = 7)	78 % (*n* = 21)	62 % (n = 16)	4 % (n = 1)	4 % (n = 1)
I have confidence in other people's ability to use iCBT	93 % (n = 25)	65 % (*n* = 17)	7 % (n = 2)	19 % (n = 5)	0,0 %	12 % (n = 3)	0,0 %	4 % (n = 1)
Work is assigned to those with skills appropriate to iCBT	74 % (n = 20)	69 % (n = 18)	15 % (n = 4)	23 % (n = 6)	4 % (n = 1)	8 % (n = 2)	8 % (n = 2)	0,0 %
Sufficient training is provided to enable staff to use iCBT	82 % (n = 22)	65 % (n = 17)	7 % (n = 2)	27 % (n = 7)	4 % (n = 1)	8 % (n = 2)	8 % (n = 2)	0,0 %
Sufficient resources are available to support iCBT	78 % (n = 21)	58 % (n = 15)	11 % (n = 3)	31 % (n = 8)	0,0 %	12 % (n = 3)	8 % (n = 2)	0,0 %
Management adequately support iCBT	74 % (n = 20)	50 % (*n* = 13)	22 % (n = 6)	42 % (*n* = 11)	4 % (n = 1)	8 % (n = 2)	0,0 %	0,0 %
Reflective monitoring								
I am aware of reports about the effects of iCBT through SibeR for my unit and my area	**82 %** (n = 22)	**54 %** (n = 14)	15 % (n = 4)	12 % (n = 3)	4 % (n = 1)	31 % (n = 8)	0,0 %	4 % (n = 1)
The staff agree that iCBT is worthwhile	**74 %** (n = 20)	**31 %** (n = 8)	22 % (n = 6)	39 % (n = 10)	4 % (n = 1)	27 % (n = 7)	0,0 %	4 % (n = 1)
I value the effects iCBT has had on my work	**82 %** (n = 22)	**46 %** (*n* = 12)	19 % (n = 5)	35 % (n = 9)	0,0 %	19 % (n = 5)	0,0 %	0,0 %
Feedback about iCBT can be used to improve it in the future	89 % (n = 24)	81 % (*n* = 21)	7 % (n = 2)	15 % (n = 4)	4 % (n = 1)	4 % (n = 1)	0,0 %	0,0 %
I can modify how I work with iCBT	82 % (n = 22)	96 % (n = 25)	19 % (n = 5)	4 % (n = 1)	0,0 %	0,0 %	0,0 %	0,0 %

NoMAD = The Normalisation MeAsure Development questionnaire.
Conc. = Concentrated.
Dec. = Decentralized.

translating the plan for iCBT implementation into action, encompassing adherence to established routines and care processes. The implementation process also incorporated the NoMAD subscales of collective action and reflexive monitoring.

Regarding the responses from therapists, the *Concentrated* units exhibited a significantly higher mean score in the Reflective Monitoring subscale ($Z = -2.548$, $p = 0.011$). However, no significant differences were observed in the Collective Action subscale (See Table 7). There were no differences on any subscales of the PCCMs' responses between the *Concentrated* and the *Decentralized* organizations (See Appendix 7).

A chi-square test examining data from the regional health care database and SibeR revealed a significant difference in the proportion of registered iCBT treatments in SibeR (X^2 (1, $N = 2973$) = 430.5774, $p = 0.001$). In total, 67 % of the treatments were registered in SibeR, 83 % in the *Concentrated* areas, and 47 % in the *Decentralized* areas (see Table 4).

3.2.7. Difficulties in the implementation process

The qualitative analysis identified a theme named "Difficulties in the Implementation Process" with subthemes including "Struggling to Find an Effective Assessment Model," "Difficulties in Including the Right Patients," and "Therapists' Drift Towards Unstructured Treatment." The assessment procedure posed challenges in identifying suitable patients for iCBT treatment. Difficulties arose when patients with complex conditions were referred for iCBT assessment or when therapists applied overly lenient inclusion criteria. Over time, therapists learned that patients also needed to possess the necessary resources to engage in iCBT treatment and exhibit symptoms appropriate for iCBT.

Therapists' drift towards unstructured treatment was identified as a challenge. This drift manifested as therapists extending the treatment duration and adopting a relaxed approach to the patient's progress in the program. Such behavior could potentially disrupt the care flow and hinder the ability to accommodate new patients.

Table 6
Overview of subscales NoMAD for therapists according to organizational model.

	Concentrated (*n* = 27)	Decentralized (n = 26)	Total (*n* = 53)	sig
Coherence, m(sd)	12.24 (2.49) (*n* = 25)	11.35 (1.72) (n = 23)	11.81 (2.18) (*n* = 48)	0.096
Cognitive participation, m(sd)	13.07 (2.34) (*n* = 27)	11.50 (2.78) (*n* = 24)	12.33 (2.65) (*n* = 51)	0.029*
Collective Action, m (sd)	19.21 (4.27) (n = 24)	17.91 (3.40) (n = 23)	18.57 (3.88) (*n* = 47)	0.162
Reflective monitoring, m(sd)	18.73 (3.96) (*n* = 26)	16.00 (3.65) (n = 25)	17.39 (4.02) (n = 51)	0.011*
Total NoMAD, m(sd)	63.89 (12.52) (*n* = 23)	56.68 (8.31) (n = 22)	60.44 (10.90) (*n* = 45)	

NoMAD = The Normalisation MeAsure Development questionnaire.
* Significant at p = 0.05.

Table 7
Maintenance. Overview of dimension of reach compared in two time periods and according to organizational model.

	Concentrated		Decentralized	
	Period 1[a]	Period 2[b]	Period 1[a]	Period 2[b]
Number of patients listed	(*n* = 376,915)	(n = 376,365)	(*n* = 390,406)	(*n* = 387,733)
Proportion with psychiatric diagnosis[c]	11 %	12 %	13 %	13 %
Proportion with psychiatric diagnosis who received CBT[d]	12 %	12 %	11 %	10 %
Proportion who received CBT who received it as iCBT[e]	14 %	16 %	14 %	12 %

[a] 2019.10.01–2020.09.30.
[b] 2020.10.01–2021.09.30.
[c] Diagnosis according to ICD-10: F32, F33, F34.1, F40, F40.1, F40.2, F41, F41.1, F41.9, F42, F43, F43.8 A, F45, F51, G47.0, G47.8, G47.9.
[d] Procedure code: du011 = Cognitive behavioral therapy, CBT.
[e] Procedure codes: du011 + zv044 + zv051 = CBT + iCBT + internetdelivered.

3.2.8. Maintenance

Maintenance was defined as the concept of ensuring the sustainability and long-term effects of iCBT implementation. To assess the stability of iCBT reach over time, the dataset was divided into two periods. Table 7 presents the comparison of reach dimensions between these time periods. It was observed that while the *Concentrated* and *Decentralized* organization models had the same reach proportion in the first period (between 2019.10.01–2020.09.30), in the second period (between 2020.10.01–2021.09.30), the *Concentrated* organizations experienced an increase in reach to 16 %, while the *Decentralized* areas showed a decrease to 12 %.

3.2.9. Sustainability

The qualitative analysis yielded the theme of "Sustainability" with sub-themes "activities that increase sustainability", "measures to secure continued learning", and "the organizational model has impact".

Recruiting and retaining iCBT therapists, along with providing them continuous method support, collegial supervision, and training, were considered crucial factors for achieving sustainable implementation of the method. To ensure ongoing development and refinement of the method, follow-up and improvement work were deemed essential. Many participants viewed iCBT as an established method in the PCCs. However, there were differing opinions on sustainability over time between the *Concentrated* and *Decentralized* organizational models. In the *Concentrated* organizational model, the presence of centrally secured competence was seen as a factor contributing to sustainability, as it reduces vulnerability in the face of staff turnover, among other factors.

> *"I also think that it is in some way securing this with continuing competence and so it will not be as vulnerable with a hub." (Informant 13 – concentrated model).*

Participants in *Decentralized* units expressed uncertainty regarding the ability to provide iCBT sustainably, considering staff turnover and the availability of resources for ongoing development and improvement.

4. Discussion

Overall, the study results demonstrate that iCBT, as a complex and qualitatively different intervention from traditional psychological treatment, can be widely implemented in primary care settings, when implementation support in form of the Regional Implementation Support (RIS) and Responsible for Psychological Management (RPM) are provided. The involvement of management support and organizational functions played a crucial role in promoting the implementation of iCBT, regardless of organizational model. The presence of people passionate abouts iCBT and knowledge in organizational change facilitated the implementation. This finding underscores the importance of motivated and knowledgeable individuals that can inspire both managers and therapists. This is consistent with recent consensus-based findings highlighting the necessity of expanded traditional roles in the implementation of new digital innovations (Smith et al., 2023).

The findings revealed variations in the selection of organizational models, which could be defined as either *Concentrated* or *Decentralized*, across sub-regions. Our comprehensive analysis suggests that the *Concentrated* model exhibits several notable strengths. First and foremost, it demonstrates an increased reach into the population during follow-up, thereby establishing a stronger maintenance compared to the *Decentralized* model where reach decreased somewhat over time. Sustainability seems to be another strength, manifested in the therapists' evaluative efforts directed towards understanding and incorporating novel practices. Moreover, there were conscious relational endeavors to establish and uphold the practice framework among therapists. These findings highlight the importance of ongoing monitoring and adjustment to sustain the reach of iCBT. This is in line with Titov et al. (2018) who found that some of the success factors for centralized iCBT units are a stable organizational management and quality systems to monitor treatment progress and outcomes (Titov et al., 2018). These strengths could have contributed to the observed higher rate of iCBT registrations in the SibeR database within the *Concentrated* units compared to the *Decentralized* units. It is noteworthy that both models benefited from equivalent RIS, which enhances the robustness of our findings. It can be noted that there may be other local concerns and potential disadvantages of a concentrated or centralized model that must be considered when choosing organizational model.

The current study also found that recruiting and retaining skilled therapists, providing continuous support and training, and integrating iCBT with existing mental health development structures were important factors for sustainable implementation. The *Concentrated* organizational model was seen as more favorable for sustainability as it reduced vulnerability in the face of staff turnover. Managers in the *Concentrated* Model actively recruited new therapists while ensuring the availability of therapists interested in iCBT, which likely contributed to the observed quality improvement and sustainability. Conversely, the *Decentralized* Model could potentially be linked to the dispersion of iCBT knowledge among a multitude of therapists within the region. Moreover, it bolsters the integration of mental health care at the PCC level. Nevertheless, if not all PCCs in the area can provide iCBT, it could potentially result in disparities in care delivery.

Implementation effectiveness was mainly assessed in terms of treatment adherence, measured by the mean percentage of completed modules. The results showed that patients treated in both *Concentrated* and *Decentralized* areas exhibited high adherence rates, with an average completion of 73 % and 71 % of iCBT modules, respectively. The high adherence rates suggest that iCBT is a promising approach for treating mental ill-health in primary care, aligning with national guidelines (National Board of Health, 2021) and previous studies (Hedman-Lagerlöf et al., 2023). The study aimed to evaluate the implementation of iCBT and factors influencing its implementation, rather than assessing the effectiveness of specific iCBT programs or comparing the organizational models in terms of symptom effects. However, in the present study the objective was to conduct an exploratory investigation of treatment effects using a measure included across treatment programs; WHODAS measuring health and everyday functioning. Results showed that for treatment completers, i.e. those finishing all treatment modules, participants across organizational models had a significant, medium ($d = 0.55$) improvement in health and everyday functioning, comparable to effect sizes of 0.41–0.63 previously observed in iCBT-trials in primary care (Williams and Andrews, 2013; Newby et al., 2017). The specific programs offered by Psykologpartners and Livanda have previously been evaluated showing preliminary efficacy (Ivanova et al., 2016; Oromendia et al., 2016), but those studies did not use WHODAS as an outcome and direct comparisons are thus difficult. Also, since post-treatment data only was available for treatment completers, the improvement in WHODAS in the current trial might be inflated since patients not finishing all modules might have improved less.

In addition, among treatment completers, the results showed that patients in the *Decentralized* model had a somewhat larger improvement. However, there were considerable fewer patients in the *Decentralized* model that were registered in Siber from the start, and thus had a pre- and post-treatment value. There were no significant differences on a variety of clinical baseline variables between the two organizational models, indicating that the lower registration in Siber was not related to a systematic selection bias of patients. However sociodemographic data and factors such as motivation for iCBT and other ongoing treatments were not collected, and a selection bias of patients could thus not be ruled out. The absence of randomization makes it not possible to infer causal relationships with regard to organizational models.

4.1. Limitations and strengths

There was a low frequency of responses to the NoMAD questionnaire. Therefore, results of the therapist perspective should be handled with caution. In addition, the findings may be more specific to the Swedish primary care context, and less generalizable across different countries. Another limitation was the problematic implementation of post-measurements, where WHODAS was included in the last treatment modules instead of being administered separately to all patients, regardless of their treatment completion. This makes the recommended intent-to-treat-analysis impossible to perform and could have inflated the level of improvement. Also, the large difference in the proportion of patients registered in Siber and the lack of randomization makes comparison of improvements between the two organizational models non-conclusive. However, it can be concluded that ICBT was effective for treatment completers in both models.

Strengths of this study include its mixed-methods approach, which provides a deeper understanding of implementation processes. Combining qualitative and quantitative data provided a more nuanced understanding of barriers and facilitators, as well as outcomes of iCBT implementation. The utilization of the implementation framework, RE-AIM, allowed assessment of multiple dimensions of the implementation process and enhances the study's credibility. Additionally, the study encompassed the entire region's public primary care, although the exclusion of private PCCs limits the generalizability of the results. It is worth noting that five of the authors were involved in the implementation process, which may introduce bias in the analysis and interpretation of results. However, their familiarity with the implementation process and the material also contributed to a more profound understanding during analysis.

4.2. Conclusions

This study highlights the potential of internet-based cognitive behavioral therapy (iCBT) in transforming primary care's mental health landscape. Key takeaways include:

- Varied Implementation Models: Our investigation identified two implementation approaches, *Decentralized* and *Concentrated*.
- Delivery: iCBT's successful delivery was evident across both implementation models, emphasizing its versatility and potential to reach a wide subpopulation of patient demographic within primary care settings, while resources are saved.
- Organizational functions, such as Regional Implementation Support and Responsible for Psychological Management play crucial roles in the implementation of iCBT, regardless of implemention model.
- Sustainability Strengths: *Concentrated* implementation areas demonstrated superior sustainability, highlighting the importance of considering long-term feasibility and resource allocation for successful iCBT integration.
- Follow-up Insights: There were less use of quality register and less reflective monitoring in *Decentralized* areas. This prompts further exploration of how this influences treatment outcomes and further development of care.

In essence, the study accentuates the need for tailored implementation strategies in diverse primary care contexts. By factoring in nuanced considerations, health-care systems can harness iCBT's potential for accessible and enduring mental health care. This study's insights offer guidance for future endeavors, propelling digital interventions into integral components of modern primary care approaches.

Availability of data and material

The datasets used during the current study are available from the corresponding author on reasonable request.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendices. Supplementary data

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