

Digital Interventions to Promote Mental Health in Women During the Perinatal Period and Carers of People With Anorexia Nervosa: Stakeholder Perspectives, Feasibility, and Effectiveness

Mental disorders are highly prevalent, of which anxiety and mood disorders are the most frequent. Untreated mental disorders can lead to a variety of negative consequences such as an impaired quality of life and high socioeconomic costs. Although evidence-based and effective treatments exist, many of the affected individuals remain undiagnosed or receive no professional help or delayed treatment due to factors including a low perceived need for treatment, perceived stigma, low mental health literacy, or structural barriers such as treatment availability. Internet- and mobile-based interventions (IMIs) for the prevention, treatment, and aftercare of mental disorders can contribute valuably to overcoming the treatment gap. IMIs may improve access to treatment, allow anonymity, offer time- and location-independent use, and prove more cost-effective than face-to-face interventions. Studies have demonstrated the efficacy of IMIs in preventing and treating a wide range of mental health problems and disorders. Nevertheless, adherence to and engagement with IMIs remain limited. To date, studies have mainly focused on investigating efficacy rather than engagement and acceptability, and existing literature suggests that patients' and healthcare providers' acceptability of IMIs is still low to moderate. However, acceptability is a significant determinant of user engagement, and low engagement, in turn, limits the efficacy and effectiveness of IMIs, highlighting the importance of implementing strategies to enhance acceptability and engagement. Evidence on the efficacy of engagement-promoting strategies is heterogeneous, and the involvement of potential users in the design and implementation is strongly recommended. Understanding the needs and perspectives of potential users and further relevant stakeholders, such as healthcare providers, may allow for improving the development of tailored interventions instead of pursuing a one-size-fits-all approach.

This thesis aims to provide insights into the acceptability, feasibility, and effectiveness of target group-specific IMIs for two underserved, vulnerable population groups, specifically women in the perinatal period and carers of individuals suffering from anorexia nervosa (AN). The thesis presents both qualitative and quantitative research from different perspectives across four manuscripts. **Study 1** presents a mixed-methods study exploring the needs and attitudes of individuals suffering from an eating disorder (ED) ($n = 20$) and their carers ($n = 10$), decision-makers ($n = 4$), and delivery staff/facilitators ($n = 41$). Qualitative interviews and online questionnaires were used to gather insights on prior experiences with IMIs, as well as attitudes

and needs related to IMIs for carers of patients with EDs. Stakeholders identified several key advantages of IMIs, including anonymity, accessibility, and cost-effectiveness. However, they also highlighted potential disadvantages, such as the lack of personal contact, limitations due to the severity of the disorder, and concerns about data security. Stakeholders emphasized the need for user-friendly, evidence-based, tailored, and guided interventions. Furthermore, factors were identified that could hinder or foster the reach, adoption, implementation, and maintenance of the intervention. **Study 2** focuses on a three-armed randomized-controlled trial (N = 268) designed to assess the effects of different types and levels of guidance in an IMI for carers of individuals suffering from AN. Participants were assigned to one of the three study conditions: 1) We Can with access to an asynchronous online forum (We Can – Forum), 2) We Can with forum access and professional-guided individual messaging support (We Can – Ind), and 3) We Can with forum access and moderated carer live chatroom support (We Can – Chat). Overall, the results showed that the primary outcomes, carer depression and anxiety scores, did not improve significantly between pre- and post-assessment, and the level of support did not have a significant effect on symptom changes. Regarding secondary outcomes, significant reductions were observed in carer burden, negative experiences of caregiving, and carer accommodation to ED symptoms, along with significant improvements in carer skills and quality of life. However, no differences were found between the three study arms. **Study 3** is a qualitative study using focus groups and individual interviews to explore needs and attitudes toward IMIs for the prevention of most common perinatal mental disorders. A total of 22 stakeholders participated in the study, including pregnant women, mothers, women with a history of postpartum mental disorders, gynecologists, and midwives. Semi-structured single interviews and focus groups were conducted to explore the perceived benefits and barriers of IMIs and the topics and features that must be included in IMIs for pregnant women and new mothers. Six key themes emerged, namely pregnancy and puerperium, perinatal mood swings and disorders, support options, self-care, partnership, and fatherhood. Preferred intervention features included individual guidance, customizability, and a responsive design. Based on these findings, a guided IMI was developed, which aimed to enhance perinatal mental well-being and prevent postpartum depression (PPD). **Study 4** presents the results of a pilot study (N = 149) evaluating the feasibility, acceptability, and adherence to this tailored IMI. The intervention was found to be feasible, and participant satisfaction with the modules indicated that the intervention was well accepted. Almost half of the participants engaged with the guidance service by responding to individual messages from their intervention moderator. Regarding the working

alliance, participants reported a strong bond with their moderator. Initial engagement was high, with 132 out of 149 participants logging into the program at least once.

Overall, the following key conclusions can be drawn from this thesis: 1) Qualitative research involving (potential) users and relevant stakeholders during the development of target group-specific interventions provides valuable information on their preferences, needs, and concerns related to IMIs. These findings can inform the development of more tailored, user-friendly interventions, thus improving acceptability and satisfaction. 2) IMIs are feasible, acceptable, and beneficial for both carers of individuals with an ED and women in the perinatal period. 3) Despite moderate engagement and completion rates, IMIs offer a scalable solution to support both populations. 4) Results on the effectiveness of IMIs for carers are promising, particularly regarding the development of carer skills, reduction of carer burden, and improvement of quality of life. Thus, tailored IMIs may provide meaningful support. 5) IMIs that integrate individualized support appear to foster a strong working alliance, which has previously been shown to improve acceptability and engagement. However, alternative support formats warrant further exploration. 6) Opportunities for social interaction with peers (through forums or live chats) may enhance acceptability and engagement for certain participants. Future research should examine the most effective peer support formats while balancing cost-effectiveness and usability.

To gather further insights into the acceptability and satisfaction with the interventions and to better understand the rationale for non-usage and dropout, a participatory approach should be employed in the intervention development and evaluation. This approach could include methods such as thinking-aloud tests and qualitative interviews, both with intervention users and those who dropped out of the intervention. According to this, further research is needed to optimize engagement and identify factors that influence actual usage behavior. Understanding these factors will aid in developing engagement-promoting strategies. Additionally, research is required to clarify when guidance is most beneficial and to identify factors that influence its impact. In particular, it is necessary to explore interpersonal and individual factors, such as readiness to engage with guidance, as well as other moderating factors (e.g., socioeconomic factors) and the accessibility and cost-effectiveness of different intervention models. By considering these variables, interventions can be tailored more effectively, allowing for a personalized rather than a one-size-fits-all approach. This approach will also help ensure that interventions remain both impactful and feasible, especially in contexts where costs and resource availability are key considerations.