Experiences of group-based cognitive behavioural therapy for insomnia among patients with rheumatoid arthritis: a qualitative study

Kristine Marie Latocha, Katrine Løppenthin, Poul Jennum, Robin Christensen, Mikkel Østergaard, Bente Appel Esbensen

ABSTRACT

Objective Rheumatoid arthritis (RA) is a chronic autoimmune disease, with a prevalence of insomnia disorders in up to 70%. Patients’ experiences of participating in group-based cognitive behavioural therapy for insomnia (CBT-I) have not been evaluated in patients with RA until now. Therefore, the aim was to explore patients’ experiences of CBT-I and how the components of CBT-I were incorporated in sleep management.

Design We conducted a qualitative study with semi-structured interviews. The interview guide was developed based on CBT-I, with questions that explicitly explored the participants’ experiences of sleep education and the behavioural components of CBT-I.

Setting Interviews were conducted one-to-one at Center for Rheumatology and Spine Diseases, Copenhagen.

Participants Patients with RA who had received CBT-I as intervention in a randomised controlled trial (N=11). The analysis was based on a reflexive thematic method.

Results Five themes were identified (1) When knowledge contributes to an altered perception of sleep, referring to the reduced misperception and increased motivation that followed sleep education, (2) Overcoming habits and perceptions to accelerate sleep onset, referring to barriers related to sleep behaviour and how stimulus control enabled them to find meaningful behaviour, (3) The sleep window of challenges in learning how to sleep right referring to that payoff from sleep restriction did not come easily or by magic, and commitment gave them confidence to continue, (4) Relaxation becomes a behavioural habit and goes beyond sleep, referring to a means to achieve a relaxed body and mind and how they thereby coped better with RA-related symptoms and (5) Break the cycle and regain control referring to how trust in one’s own accomplishment was crucial to reducing worrying.

Conclusion The process towards eliminating insomnia was a bodily experience and involved a changed mindset that resulted in an alteration of behaviour and cognitions.

INTRODUCTION

Rheumatoid arthritis (RA) is a chronic autoimmune disease characterised by persistent inflammatory symmetrical synovitis in peripheral joints. RA affects women three times more frequently than men, and the prevalence increases with age, with onset of debut symptoms peaks between 35 and 55 of age. The aetiology of RA is unknown, but genetic and environmental factors may contribute to the development of the disease. The most common objective symptoms of RA are swollen joints and joint destruction as well as fatigue, pain, sleep disturbances, flare, decreased physical function and decreased health-related quality of life. Notwithstanding improved health status in people with RA as a result of the introduction of disease-modifying antirheumatic drugs in the early 1990s, residual arthritis-related symptoms and burdens are still common. This suggests that patients still have unmet needs under the current pharmacological antirheumatic treatment paradigm.

Insomnia disorders—characterised by reduced sleep quantity and quality—are highly prevalent in RA, occurring in up to 70% of the patients. It is well established that insomnia disorders, often reported as sleep disturbances in people with RA, are associated with increased pain and...
fatigue, and decreased mental well-being and quality of life.\textsuperscript{12,16–19}

According to international guidelines, cognitive behavioural therapy for insomnia (CBT-I) is the recommended first-line treatment for chronic insomnia, as it produces significant positive and sustainable effects on sleep without serious adverse events to follow.\textsuperscript{20,21} CBT-I aims to disrupt the patterns of maladaptive thinking and behaviour that serve to maintain insomnia. CBT-I comprises sleep education (including sleep hygiene), behavioural components (stimulus control, sleep restriction, relaxation) combined with a cognitive component (managing sleep-related worries, and intrusive thoughts and perceptions).\textsuperscript{21–24}

In a meta-analysis, an effect size of 1.13 (95\% CI 0.70 to 1.56) on sleep efficiency and 0.85 (95\% CI 0.57 to 1.14) on sleep quality were found, favouring the CBT-I group over comparator in people with insomnia.\textsuperscript{25} Further, the efficacy of CBT-I has also been demonstrated in patients with medical and psychiatric comorbidity,\textsuperscript{26} however, in people with RA and concomitant insomnia, knowledge of the effect and experiences of CBT-I is lacking. Therefore, we have tested a group-based CBT-I in a randomised controlled trial (RCT) (NCT03766100).\textsuperscript{27,28} We intended to explore and evaluate how participants experienced the CBT-I intervention provided in the RCT, and how they described their possible benefits from the intervention. Furthermore, we wished to explore the patients’ knowledge and usage of the different components of CBT-I. Such knowledge can guide further development and implementation of CBT-I intervention in clinical rheumatology practice. Thus, the aim of this study was to explore patients’ experiences of CBT-I and how the components of CBT-I were incorporated in sleep management.

**METHODS**

**Study design**

This study was based on a descriptive qualitative design with semi-structured interviews. The participants were diagnosed with RA (according to the ACR(American College of Rheumatology)/EULAR (European Alliance of Associations for Rheumatology) 2010 criteria)\textsuperscript{29} and had low-to-moderate disease activity (DAS28-CRP ≤5.1).\textsuperscript{30} All participants had previously participated in the intervention group in the above-mentioned RCT.\textsuperscript{28} The RCT had a two-group parallel design with participants allocated 1:1 to either CBT-I (intervention) or usual care with no protocolised treatment for insomnia as a comparator (control). The intervention in the RCT was face-to-face group CBT-I with attendance 2 hours per week for 6 weeks, and a health professional (HP) facilitated the sessions, CBT-I trained and registered nurse. The sessions comprised presentations, instructions and assignments, questions, clarifications, sharing of participants’ experiences and reflections on how to use the knowledge. More information about the intervention is published elsewhere.\textsuperscript{28} The content of the CBT-I intervention can be found in table 1.

Patients were included in the RCT if, at time of screening, they were diagnosed with RA, 18 years of age or older and had chronic insomnia according to the International Classification of Sleep Disorders - Third Edition (insomnia disorders for more than three

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consecutive months), and had a score of ≥11 on the Insomnia Severity Index questionnaire.

Setting
All interviews were conducted at the outpatient clinic, Center for Rheumatology and Spine Diseases, the Capital Region of Denmark, in a room without interruptions or the presence of anyone other than the participant and the interviewer. The interviews were conducted by BAE, as she is an experienced qualitative researcher. Prior to the interviews, the participants were informed of the interviewer’s name and affiliation, but they had no contact until the day of the interview. The interviews were audiotaped, no notes were done.

Participants
Eligible participants had participated in the sixth and final session of CBT-I and completed the last follow-up in the RCT. This applied to 25 participants, and every second participant was consecutively invited, thus a total of 12. One withdrew because her husband was hospitalised. We considered that information richness had been achieved after these 11 interviews. Information about insomnia was obtained from the Insomnia Severity Index and sleep from the Pittsburgh Sleep Quality Index; fatigue from Bristol Rheumatoid Arthritis Fatigue Numerical Rating Scale; pain from Visual Analogue Scale pain and patients global from the single question ‘How much does the arthritis affect you currently?’. These information were collected at the baseline assessment in the RCT. A detailed description of the instruments is published elsewhere.

Interview topic guide and data collection
The interview topic guide was developed based on CBT-I components, with questions that explicitly explored the participants' experiences of sleep education and the behavioural and cognitive components (online supplemental file 1). Thus, we defined specific questions to uncover these components. Questions to address cognitions were not allocated to a specific topic in the interview guide but were incorporated as subquestions during the interview when the participant brought it up or the interviewer found it natural to uncover and explore. That allowed us to follow and explore the cognitive elements when the participants referred to their thoughts or feelings as the interviews progressed.

Patient and public involvement
We collaborated with two patient research partners (PRPs), in accordance with the European League Against Rheumatism recommendations for the inclusion of patients in scientific projects. The PRPs were women with RA; they had not participated in the RCT but had previously completed individual CBT-I treatment in the outpatient clinic at the Center for Rheumatology and Spine Diseases, after respectively 9 and 5 years of insomnia. The PRPs were involved with all phases of the study including interpretation of the results. The PRPs also read and commented on the material given to the participants in the study and the interview topic guide.

Data analysis
Interviews were transcribed verbatim by a medical secretary, not otherwise involved in the study. All transcripts were organised using NVivo qualitative data analysis software (QSR International, V.12, 2018). The first, second and last author collaborated on the analysis. The analysis was based on Braun and Clarke’s six-stage reflexive thematic analysis method, which provides a rich and complex understanding of patterns within data. We used a deductive-inductive analytical approach, which allowed a flexible approach between the semantic level (surface, obvious) and the latent level (implicit, underlying).

First, we read all interviews with an open mind, to get an overall impression of the patients’ experiences of CBT-I. In the second phase, we generated a codebook, based on the CBT-I components, including behavioural components, and cognitions (covering sleep education, sleep hygiene, stimulus control sleep restriction) as well as experiences participating in the CBT-I intervention as well as experiences participating the CBT-I and personal perspectives on the sleep process. This predetermined codebook served as our analytical and theoretical framework and acted as our lens through which we analysed, organised and interpreted data relevant to the aim of the study. We deductively coded the raw data related to the predetermined codes in the codebook, and a manifest analysis was undertaken. In the next phase, we developed a map of potential themes, which were refined through an iterative process of reading, writing and analysing. Furthermore, the themes were organised and modified so that they meaningfully represented the relationship between different themes (latent analysis). Then, we reviewed the themes by intuitively comparing them with each other, to search for comparable and incomparable content that described the participants’ experiences of CBT-I. We finally labelled the themes, identifying the essence of each theme. This phase allowed a rich and comprehensive interpretation of data. In the final phase, an analytical narrative was created, and participants’ quotations were selected to support the interpretation of the five themes agreed on, as described in the results. During the analysis, the authors agreed that the investigated topic represented information richness in the 11 interviews.

RESULTS
Ten women and one man participated in this study. Mean duration of interviews were 54 min (range 41–62 min). Prior to inclusion in the RCT, they had had insomnia disorders for between 3 and 35 years (median 8 years). Further characteristics are presented in table 2.

When knowledge contributes to an altered perception of sleep
Prior to the CBT-I intervention, the participants had gained some knowledge about sleep and insomnia by
Searching the internet and some had turned to their general practitioner for help. The participants found the educational component essential to understand normal variations of sleep during the night and what could contribute to perpetuating insomnia.

Initially, the participants had misperceptions regarding the required amount of deep sleep and were concerned that lack of deep sleep would ‘destroy’ them. Especially those who struggled with waking up too early found comfort in knowing that deep sleep occurs primarily during the first part of the night. With increased knowledge, the participants came to an acceptance of waking up during the night.

That meant I understood what sleep is, and that it is completely normal to wake up at night. I used to think ‘oh no’, and was so afraid to wake up, where now you know that it is completely normal, then you can sleep on ... And that it is normal for everyone to have a little trouble sleeping occasionally. It was a good basis for what we were going to do. (#P11)

Sleep hygiene was mostly common sense to the participants. When the conversations on sleep hygiene were based on the participants’ daily lives, it became meaningful for them to engage and discuss their own habits. Further, they found it easier to implement and adhere to the changes when the HP reviewed the recommendations.

So that is a no go. No coffee or tea after 6 o’clock... it makes good sense, and it’s a little strange that someone else has to say it when you already know it. (#P3)

As CBT-I progressed, the experienced improvement in the participants’ ability to fall asleep and stay asleep was motivating to them. This made it easier to commit to staying awake during the day and not surrender to napping. They described how they replaced napping with knitting, audiobooks or walking the dog. Also, television watching before bedtime was replaced by reading, crosswords or yoga. Eliminating clock watching in the bedroom required some adaptation to unlearn the behaviour. On the first night, they woke up to look at the clock but found the bedroom to be pitch black. Not focusing on the amount of time they had slept, or hours left before getting up, made it easier to regain sleep.

**Overcoming habits and perceptions to accelerate sleep onset**

In the first weeks of CBT-I, the participants overcame several barriers. They had been used to staying in bed watching television or tossing and turning, hoping to fall asleep. So, for some, stimulus control initially conflicted with the pursuit of sleep.

In the beginning I just stayed in my bed, it was just a habit, and I was always like ‘come on, sleep now’. I thought, and I actually think I said [to the health professional], I cannot do that, because if I get up, I will be awake. (#P1)

The participants described the rule of getting out of bed when not asleep, as challenging and demanding, but the stringency was helpful as it became difficult to find excuses. Also, being guided by the HP and having peers who endured the same problem increased their perseverance and they continued because they had committed themselves to the course. They were also aware of their own role in achieving success and felt responsible to do as they were told.

When the participants began to experience that getting out of bed when not sleeping had a positive impact on their sleep and their ability to be relaxed when going to bed, it became easier to adhere to stimulus control. When the participants had applied the rules of stimulus control so that they developed meaningful and useful habits, it was as finding a rhythm. Some expressed that, even though they considered the rules to be meaningful early on during CBT-I, the persistent effect came after months of awareness of the rules. The persistent effect was described as having an altered bodily and cognitive perception that were aligned.

I could quickly feel that, when I got out of bed, did something else in the middle of the night, and went back to bed, I could wind down faster and relax. And it’s just gotten better and better and better because I’m constantly aware, when I’m out of my bed, when I am not sleeping. (#P 5)
After CBT-I, participants were confident of their management of sleep onset and were able to get back to some of their routines that had been suspended during the intervention and which they had missed.

I practiced it [reading in bed], and now I can do it, now I lie and read for 10 min, and put the magazine away, and then I actually fall asleep right away, so now I dare to do it. (#P9)

Few expressed that they had continued to experience prolonged awakenings from time to time. The awakenings were related to their fear of not being able to fall asleep and the hyperarousal that follows negative cognitions. However, these awakenings were rare now, compared with prior in the CBT-I. Also, having the required knowhow to deal with these awakenings by applying stimulus control as intended gave a sense of control.

I can feel I’m starting to get a lot of thoughts that I know I can do nothing about anyway. And then I get up and go downstairs and find my book or my crossword puzzle … Then I’m starting to get tired, I want to sleep again, and I can just feel that relaxation that comes. (#P1).

The window of challenges in learning how to sleep right
Initially, the participants found sleep restriction contradictory, as they were focused on sleeping more. Sleep restriction was a new way of thinking about sleep, and they were attentive to ‘learning how to sleep right’, as one expressed her perception of the component. When sleep restriction was applied, they all recognised that the payoff did not come easily or by magic. Facilitating adherence in the late hours, and the first days of sleep restriction were described as ‘completely insane’, with a feeling of being a zombie with nausea.

The participants’ motivation increased as it became easier to fall asleep and stay asleep, which kept them going and able to cope with the challenges and the demanding work sleep restriction was described to be. These experiences gave them confidence to continue the inflexible approach with the component. Further, it increased their belief in their ability to eliminate insomnia.

I was really tired, and you should not make an appointment with me, because I could not remember what we had agreed on. I was simply so tired, and like if you are not asleep within 15 min, then you must get up … I never got up after that. Ok, I’ve been awake a few times during the night, but not for long. And that makes you optimistic and able to endure it. (#P2)

Writing down rise time, awakenings, etc, in a sleep diary was helpful to most, as it made them reflect and follow progression from fragmented sleep to more consolidated sleep.

I think it was good to write the diary, constantly aware of where I was, and that I was going in the right direction, so there was one bad night, but there were also five good nights… I was glad that it actually went so fast. Then I could add 15 min, and 15 min more. And so, I could see in black and white that I did not wake up at four in the morning. (#P7)

Sleep restriction was perceived as exceptionally tough. However, after CBT-I, most participants were still committed to a restricted time in bed, as they found it meaningful and manageable to continue the inflexibility related to the component. Some were focused on getting up at the same time every day, while others found it more useful to keep a set length of time in bed every night.

I’m probably a little strict about it. If we are out or have guests, then I have to adapt, but in everyday life I generally stick to it. Even a fool can see that it is logical [sleep restriction], once you know what it’s all about. (#P8).

Relaxation becomes a behavioural habit and goes beyond sleep
For some participants, the relaxation component was described as a means to achieve a relaxed body and mind. Some used relaxation strategies if they woke up during the night and got out of bed. Others had incorporated relaxation into their routine to wind down before bedtime.

I can really feel it [relaxation], both in the body and in the mind and I think that has a very, very big impact, because I still use it [meditation app]. If I’m having a night where I can feel I’m not going to sleep right now, something’s going on in my head. Then I go and sit in the living room and listen to it, it makes my body relax. (#P6)

The participants discovered that relaxation helped them to cope better with fatigue. They no longer considered napping as the only way to overcome the feeling of being exhausted but saw relaxation as a tool to manage fatigue. Consequently, they experienced a positive impact on their ability to sleep at night, and with improved sleep some experienced fatigue was reduced.

I do not have that completely exhausting fatigue where I can just sit down and cry anymore. I still get it, but it’s not as pronounced as it used to be, now that I sleep better. (#P9)

Break the cycle and regain control
The conversations on dysfunctional thoughts during CBT-I were central to the participants’ awareness and perception of the cause and severity of their insomnia, and the vicious cycle.

I thought I had no excessive thoughts until a few weeks [of CBT-I] had passed. One day I was going to fall asleep, it was completely quiet, and I have never experienced that before. So, I asked my mother and son “When you go to bed at night, is it quiet”? They
both answered “Yes”. It dawned on me, God no, I have 30 billion thoughts before I go to bed. It dawned on me, shut up, if I do not learn this discipline, then I will never sleep again. (#P10)

Some found worry time to cope with negative cognitive activity to be unnatural and imposed, while others wrote thoughts down in a book or had a specific ‘do not disturb’ chair. Venting time, thought time, discussion time were expressions participants used to describe their interpretation of worry time.

I still use it [worry time]; I write everything down that comes to mind. I did it every day the first month after we had finished, but now I do it every second or third day. If rumination pops up during my wind-down, then I can send it off on a leaf and down the river and say, see you tomorrow. (#P11)

Those who had experienced excessive negative cognitive activity as a part of the reason for insomnia, now saw a clear link between the behavioural components and their cognitions over time. By continuously applying and managing the behavioural components, both during and after the CBT-I intervention, they began to see a positive impact on their sleep. With the positive payoff of continuous commitment to stimulus control and sleep restriction, they became confident in their ability to sleep. This was crucial to reduce worrying about the consequences of insomnia.

Those who still experienced nights of fragmented sleep occasionally, had confidence in their ability to sleep and felt in control of their sleep again. If they experienced negative cognitive activity leading to hyperarousal from time to time, they now perceived the prolonged awakenings to be inconsequential, as they knew from experience that the next night most likely would be good.

It brings me peace of mind to know, when I do this, and I know it works. So if I can feel “no, it is not there yet” then it’s out of bed, down and do something else... then I might only get 3 hours that night but then I know because I have learned from experience, I’ll sleep well the next day. I’m not afraid of not sleeping, those mental things that we’ve talked a lot about, the tools to say, “well, that’s how it is”. (#P9)

**DISCUSSION**

We found that sleep education increased the participants’ understanding of normal sleep and perpetuating factors contributing to insomnia. Sleep education is the CBT-I component that is often applied initially in the treatment. However, there is insufficient evidence to determine the effectiveness of sleep education as a single component of insomnia,

but it is likely that the participants in our study were provided with enough information to make decisions about their sleep behaviour. This is in line with a previous study of treatment preference and patient satisfaction that found sleep education to be associated with adherence to CBT-I. This should potentially be seen in light of the fact that sleep education enhances the patient’s confidence and motivation, which leads to greater adherence.

The participants in our study had success with the stringent rule of getting out of bed when not sleeping. It is well known that, for many people suffering from insomnia, the bed and bedroom have become associated with arousal, rather than with sleep. We found that a bodily experience and a changed mindset resulted in positive cognitive activity, which may be explained by the conditioning between bed and arousal was replaced with the bed being a cue for sleep. This persistent effect was still felt months later, which we contextualise as an existential altered perception of sleep, which supports the long-term effect of CBT-I.

Once the participants began to experience improvements in sleep, probably due to reduced sleep latency and increased sleep consolidation leading to increased sleep efficiency, the restrictions became more acceptable. However, sleep restriction is a two-sided coin. On the one hand, it is the component that patients least like. On the other hand, sleep restriction has repeatedly proved to be the single most efficient component to reduce insomnia. This emphasises that, even though sleep restriction is experienced as challenging and demanding, the patients adhere to it. In the perspective of the theory Sense of Coherence by sociologist Aaron Antonovsky, and based on our findings and sleep physiology, it is relevant to suggest a possible trajectory that can bring light to the two-sided coin of sleep restriction. In the first phase of the trajectory, we interpret that the inflexibility of sleep restriction is comprehensible. Further, as the homoeostatic sleep drive leads to increased sleep efficiency, the demanding efforts become meaningful. Lastly in the light of a possible trajectory, the patients recognise that it is due to their own commitment and effort that sleep is improved. This strengthened the belief in own accomplishment and sleep restriction becomes manageable, which is found to support adherence.

There is little agreement on the most important reasons for adherence during CBT-I, but patients’ perception of the components seems to be linked to treatment acceptability and motivation and further related to adherence. In our study, we found that the participants strived to find coping strategies to help facilitate adherence. A previous mixed methods study found that, if patients felt that their sleep window was unachievable, a possible solution for them was to negotiate with the HP to try to facilitate adaptation and adherence. We suggest that modification of sleep restriction should not be based on the amount of time in bed but instead based on the patients’ wishes about rise time, with bedtime adjusted accordingly, unless contraindicated. In our study, the participants’ adherence was positively affected by the improved sleep they experienced within a few weeks. Also, the stringency and inflexibility that was entailed made it impossible to find justifications for
altered versions. We interpret these findings to mean that the participants experienced sleep restriction to be demanding but at the same time preferable. The participants in our study also described that they continuously and still used sleep restriction. This maintenance may further reflect the participants’ perception of sleep restriction as meaningful and acceptable, which is essential in treatment adherence.17

Methodological considerations are required when evaluating the trustworthiness of our results.48 In terms of credibility, the first, second and last authors were familiar with the textual data. This enabled us to illuminate blind spots, to understand data in multiple ways and thereby ensure a comprehensive conclusion. Further, the interviewer ensured the validity during the conversations by informal member checking. The patient research partners contributed in essential ways to credibility. They were not only involved in the development of the interview guide, but they were also invited to comment on the results and conclusion. We believe that our findings are transferrable to other groups of patients with inflammatory arthritis and insomnia, as they are comparable regarding arthritis-related symptom burden, for example, fatigue and insomnia.49 50 A limitation of this study may be the unequal distribution of men and women. Consequently, possible sex differences in relation to experiences of CBT-I requires further specific focus.

The eligibility criteria in the RCT ensured the participants had chronic insomnia, which increased the dependability of this qualitative study. One can consider whether the number of included participants in this type of study was low. However, the study had a relatively narrow focus, and the interview topic guide closely followed the various components of CBT-I. The authors agreed that already around the interview 9 and 10, no more new things came up. Therefore, we considered it sufficient with the 11 participants to reach information richness. This qualitative study aimed to explore patients’ experiences of CBT-I and how the participants incorporated these components into their sleep management. On that basis, we created an interview topic guide based on components of the intervention CBT-I, which is a strength of the project. CBT-I is a form of therapy; consequently, it can be questioned whether it is possible to capture the participants’ consciousness with these questions. However, our results suggest that the participants could describe their experiences with CBT-I. Our analysis was conducted with parallel discussion between the first, second and last authors. This contributed to a comprehensive interpretation of the findings and strengthened dependability.

To ensure confirmability, the first author did not conduct the interviews. That decision was made because she was responsible for recruiting and completing all CBT-I sessions in the RCT and thereby had already established a relationship with the participants. All referable data were deleted from the transcript files before the analysis, and no participants were identifiable in the textual data. Furthermore, to ensure confirmability, the first, second and last authors discussed the findings during the analysis to ensure that the findings were grounded in the data.

In conclusion, the participants expressed that, through CBT-I, they gained an understanding of sleep and insomnia that was essential for their commitment and output. The participants perceived CBT-I as challenging and demanding that required determination and persistence. In addition, the instructions in the CBT-I made it easier to adhere to the behavioural components. The results of this study can contribute to and have impact on future approaches in rheumatological clinical practice. CBT-I is a valuable and meaningful treatment. Based on the participants’ experiences, it is essential in clinical rheumatology practice that HPs stay to the stringency of the CBT-I and the inflexible rules of stimulus control and sleep restriction to obtain success. In the months that followed the intervention, participants worked continuously with those components that were perceived valuable during CBT-I, which demands the HP in the future in practice to encourage patients to stay to the changed mindset that resulted in an alteration of behaviour and cognitions.

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was needed, in accordance with Danish law. The study complies with the ethical principles of the Declaration of Helsinki. Participants gave informed consent to participate in the study before taking part.

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Data availability statement Data are available upon reasonable request. The data that support the findings of this study are available upon reasonable request from the corresponding author. The data are not publicly available because of restrictions regarding information that could compromise the privacy of research participants. Data are available until 1 October 2024 at which time they should be destroyed, in accordance with the approval from the Danish Data Protection Agency.

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