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Mind the gap: a nested randomised pilot study of culturally inclusive, internet-delivered prolonged exposure for PTSD among immigrants

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ABSTRACT

Background: PTSD is disproportionately prevalent among immigrants in Sweden, yet access to evidence-based treatments remains limited, especially for those facing language barriers. Internet-delivered prolonged exposure (I-PE) may help overcome these challenges, but its feasibility and effectiveness in diverse populations remain underexplored.

Objective: This study evaluated the feasibility, acceptability, and preliminary effects of a culturally inclusive, therapist-guided I-PE programme in easy-to-read English for immigrants with PTSD.

Method: A nested pilot study within an ongoing RCT randomised 30 participants to I-PE or a waitlist control. The intervention incorporated simplified language, diverse visual representations, and a user-friendly platform. Feasibility outcomes included recruitment, adherence, and retention. Acceptability was assessed through satisfaction, adverse effects, and cultural appropriateness, while preliminary efficacy was evaluated via PTSD symptom severity and secondary measures of depression.

Results: Recruitment was completed in six weeks, with moderate to high retention. Adherence was strong, with 63% completing at least five I-PE modules. Participants rated the intervention as highly acceptable, with no major cultural barriers. The easy-to-read English format was well received, with no reported linguistic accessibility issues. No serious adverse events were reported. PTSD symptoms significantly decreased in the I-PE group (Cohen's $d = 1.45$; $p < .001$), with moderate reductions in depression (Cohen's $d = .80$; $p < .01$).

Conclusions: The findings support the feasibility and acceptability of a culturally inclusive, therapist-guided I-PE programme for PTSD among immigrants. The participants perceived the I-PE as helpful, trustworthy, and easy to use, with no suggestions for further cultural modifications or reports of cultural inappropriateness. However, the sample's relatively high English proficiency and education may limit generalizability to other groups who have migrated to Sweden. A full-scale randomised controlled trial is needed to assess clinical and cost-effectiveness, as well as implementation across more diverse immigrant populations.

Trial registration: [ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT06193161) identifier: NCT06193161..

Cuidado con la brecha: estudio piloto aleatorizado anidado sobre una intervención culturalmente inclusiva de exposición prolongada por internet para el TEPT en personas migrantes

Antecedentes: El trastorno de estrés postraumático (TEPT) presenta una prevalencia desproporcionadamente alta en la población migrante en Suecia. Sin embargo, el acceso a tratamientos basados en la evidencia continúa siendo limitado, particularmente entre quienes enfrentan barreras idiomáticas. La exposición prolongada administrada por Internet (I-PE, por sus siglas en inglés) podría representar una alternativa viable para superar estos obstáculos, aunque su viabilidad y eficacia en poblaciones diversas aún no ha sido suficientemente investigada.

Objetivo: Este estudio evaluó la viabilidad, aceptabilidad y efectos preliminares de un programa de I-PE guiado por terapeutas, culturalmente inclusivo y presentado en inglés de fácil comprensión, dirigido a personas migrantes con diagnóstico de TEPT.

Método: Se llevó a cabo un estudio piloto anidado dentro de un ensayo clínico aleatorizado (RCT, por sus siglas en inglés) actualmente en curso, en el cual 30 participantes fueron asignados aleatoriamente a un grupo de intervención (I-PE) o a una lista de espera. La

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TEPT; personas migrantes; exposición prolongada por Internet; inclusión cultural; terapia cognitivo-conductual en línea; cuidado con la brecha

HIGHLIGHTS

- The nested pilot study evaluated the feasibility and acceptability of culturally inclusive, therapist-guided internet-delivered prolonged exposure therapy for immigrants with PTSD, using an easy-to-read English format, which was well understood and accessible to participants.
- The intervention was well-received, with 63% of participants completing core treatment components and reporting clinically significant PTSD symptom reductions, while no participants found the material culturally inappropriate and weekly monitoring ensured safety and adherence.
- Some participants experienced temporary distress increases, and two reported suicidal ideations, highlighting the need for ongoing monitoring and tailored support in exposure-based digital treatments.

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intervención incluyó lenguaje simplificado, representaciones visuales diversas y una plataforma de uso amigable. Los indicadores de viabilidad evaluados incluyeron reclutamiento, adherencia y retención. La aceptabilidad se midió mediante niveles de satisfacción, presencia de efectos adversos y adecuación cultural. La eficacia preliminar se evaluó a través de la severidad de los síntomas de TEPT y medidas secundarias de depresión.

Resultados: El reclutamiento se completó en seis semanas, con tasas de retención moderadas a altas. La adherencia fue sólida, con un 63% de los participantes completando al menos cinco módulos del programa. La intervención fue calificada como altamente aceptable, sin barreras culturales significativas reportadas. El formato en inglés de fácil lectura fue bien recibido, sin dificultades de accesibilidad lingüística. No se reportaron eventos adversos graves. Los síntomas de TEPT disminuyeron significativamente en el grupo de I-PE (d de Cohen = 1.45; $p < .001$), observándose además una reducción moderada de los síntomas depresivos (d de Cohen = 0.80; $p < .01$).

Conclusiones: Los resultados respaldan la viabilidad y aceptabilidad de un programa de I-PE culturalmente inclusivo y guiado por terapeutas para el tratamiento del TEPT en personas migrantes. Los participantes percibieron la intervención como útil, confiable y de fácil uso, sin sugerencias adicionales de adaptación cultural ni reportes de inadecuación cultural. No obstante, el nivel relativamente alto de dominio del inglés y de escolaridad de la muestra puede limitar la generalización de los hallazgos a otros grupos migrantes en Suecia. Se requiere un ensayo clínico aleatorizado a gran escala para evaluar la eficacia clínica y costo-efectividad del programa, así como su implementación en poblaciones migrantes más diversas.

Abbreviations: **CAPS-5:** Clinician-Administered PTSD Scale for DSM-5; **CBT:** Cognitive Behavioural Therapy; **CSQ-8:** Client Satisfaction Questionnaire-8; **I-PE:** Internet-based Prolonged Exposure; **IEUQ:** Internet Evaluation and Utility Questionnaire; **LEC-5:** Life Event Checklist for DSM-5; **MTG:** Mind the Gap research consortium; **PCL-5:** PTSD Checklist for DSM-5; **PE:** Prolonged Exposure; **PHQ-9:** Patient Health Questionnaire-9; **PTSD:** Post-Traumatic Stress Disorder; **RCT:** Randomised Controlled Trial; **WHO:** World Health Organization

1. Introduction

Post-Traumatic Stress Disorder (PTSD) is a severe and debilitating psychiatric condition that poses a significant global mental health challenge, affecting approximately 5.6% of individuals over their lifetime (Koenen et al., 2017). The disorder is marked by distressing symptoms such as intrusive memories, hyperarousal, emotional numbing, and avoidance behaviours, which can lead to substantial impairments in daily functioning (Kessler et al., 1995). PTSD is frequently accompanied by a range of psychiatric comorbidities, including substance use disorders, depression, anxiety, and a heightened risk of suicidal ideation (Kessler et al., 1995, 2012; McFarlane et al., 1994; Song et al., 2018). Without timely and effective treatment, PTSD often becomes chronic, imposing a considerable burden on both individuals and society (Morina et al., 2014; Steinert et al., 2015). Immigrant populations face disproportionate risks of PTSD and other mental health challenges, making them a critical group in need of effective and tailored interventions. In Sweden, where one-fifth of the population is foreign-born, asylum seekers and refugees are particularly affected, with studies showing that immigrants are nearly three times more likely to develop PTSD compared to the general population (Frans et al., 2005; Missinne & Bracke, 2012; Statistics Sweden, n.d.) This heightened prevalence can be attributed to factors such as exposure to traumatic events during conflict

or forced migration, ongoing stressors in the host country, and barriers to accessing mental health care. Despite the heightened need, access to psychological treatment for immigrants remains critically inadequate. Factors such as low health literacy, stigma, prejudice, cultural differences, and the limited availability of information in minority languages significantly contribute to this disparity (Hollander, 2013; Missinne & Bracke, 2012). In Sweden as a result, foreign-born individuals are disproportionately less likely than their Swedish-born counterparts to seek or receive the psychiatric care they urgently need.

Trauma-focused psychological therapies such as prolonged exposure (PE), are recognised as first-line treatments for PTSD (Hamblen et al., 2019). However, a substantial gap exists between the need for and availability of these evidence-based treatments, particularly for immigrant populations. Recent findings from the WHO's World Mental Health Surveys reveal a troubling global disparity in PTSD care, with only 17% of individuals diagnosed with the condition receiving evidence-based psychological treatment (Stein et al., 2023).

For immigrants, these disparities are further compounded by language barriers, cultural differences such as limited access to specialised care, often due to geographic distance, personal (e.g. educational level, past experiences with health care), or systemic structural obstacles. These factors create significant barriers to receiving timely and effective trauma

treatment. To overcome barriers and expand access to care, evidence-based interventions delivered in a digital format present a promising alternative. Digital solutions have the potential to reduce the threshold for seeking help and minimise stigma associated with trauma and mental health treatment (Bragesjö, Arnberg, Jelbring, et al., 2021).

The growing body of evidence supports the effectiveness of digital interventions for PTSD, particularly internet-based cognitive behavioural therapy (CBT) and prolonged exposure (PE), which show significant symptom reductions, especially when therapist guidance is provided (Bisson et al., 2022; Bragesjö et al., 2024; Ehlers et al., 2023; McLean et al., 2021; Simon et al., 2023). However, the majority of trials to date, have primarily recruited participants from native-speaking, majority groups, limiting the generalizability of these findings to immigrant populations or those with different cultural and linguistic experiences. Moreover, while internet-based treatments have been shown to overcome barriers related to geography and stigma, challenges related to health literacy, digital access, and cultural relevance may persist and require specific adaptation efforts (Huey et al., 2023; Spanhel et al., 2021). Internet-based treatments can also be adapted to promote cultural responsiveness and inclusiveness, thereby improving their reach and effectiveness across diverse groups (Huey et al., 2023). A recent systematic review on culturally adapted digital interventions for mental disorders (Spanhel et al., 2021) identified a taxonomy of 17 cultural adaptations across three domains:

1. Treatment content – including illustrated characters, culturally relevant activities, addressing environmental burdens and values/traditions, language translation, tailoring, visualisation, and features addressing differences in mental health knowledge, treatment goals, and methods.
2. Methodological components – such as functionality, structure, design, and guidance of treatment.
3. Procedural components – including methods and stakeholder involvement to gather information, and the use of theoretical frameworks.

This taxonomy highlights the importance of tailoring both the content and the delivery format of digital interventions to better align with the needs of diverse populations. Cultural responsiveness in psychotherapy refers to the therapist's or an interventions' ability to acknowledge, respect, and integrate clients' cultural values, experiences, and communication styles into the treatment process (Huey et al., 2023). Cultural inclusivity aims to design interventions that are broadly accessible and relatable across diverse cultural groups rather than tailoring interventions to specific groups (Bernal et al., 2009; Resnicow et al., 1999). A

lack of cultural responsiveness may contribute to lower engagement, reduced adherence, and poorer outcomes, thereby directly impacting key feasibility and acceptability parameters such as recruitment, retention, and participant satisfaction. Developing culturally inclusive digital interventions is therefore essential not only for ethical reasons but also to enhance the feasibility, reach, and scalability of dissemination and implementation efforts (Spanhel et al., 2021). Despite this, most digital PTSD treatments have been developed for native-speaking, majority populations and often overlook critical cultural and linguistic factors. As a result, many immigrants – who could greatly benefit from these interventions – remain underserved.

Addressing this gap, the present clinical trial was conducted within the Mind the Gap (minthegapstudies.com; Molander et al., 2024), a research consortium at Karolinska Institutet, dedicated to expanding access to evidence-based psychological treatments for minority populations with mental health challenges. These populations are typically underrepresented in treatment research, exhibit low rates of care-seeking, and face significant barriers to accessing evidence-based care within conventional healthcare settings (Hollander, 2013). The Mind the Gap consortium uses broad treatment dissemination strategies to reach as many individuals in need as possible. It also analyses the populations reached to identify any remaining gaps (Molander et al., 2024). In Scandinavian countries such as Sweden – unlike much of the rest of the EU – English is widely integrated into daily life through education, workplaces, and media. This provides a unique opportunity within the EU to deliver evidence-based psychological interventions in a format accessible to a broader range of immigrants. Digital therapies like I-PE thus represent a scalable, pragmatic approach to improving trauma care among underserved populations, ultimately promoting better mental health outcomes and greater health equity. By simplifying language, ensuring cultural inclusiveness, and maintaining core therapeutic components, the current intervention aimed to reduce barriers related to language and culture without compromising treatment fidelity.

The present nested pilot study aims to evaluate the feasibility and acceptability of a therapist-guided I-PE treatment protocol for PTSD among immigrants in Sweden, focusing on indicators such as outreach, retention, adherence and satisfaction to treatment, and negative effects. Key aspects of feasibility include assessing whether easy-to-read English can serve as a universal language for treatment delivery across diverse immigrant groups, as well as evaluating the cultural inclusiveness of the adapted I-PE content to determine whether further modifications are

warranted prior to a subsequent full-scale RCT. Additionally, the study explores the intervention's potential effects on PTSD symptom reduction.

2. Methods

The nested pilot trial, conducted within a larger RCT, assessed the feasibility and acceptability of I-PE for PTSD among immigrants in Sweden. Between March 11th and April 26th, 2024, 30 participants were enrolled to assess feasibility and intervention delivery before the full RCT. Ethical approval was granted by the National Ethical Review Board (ID: 2023-02715-01), and the study was registered on ClinicalTrials.gov (ID: NCT06193161). Informed consent was obtained from all participants after they reviewed the study information.

2.1. Participants

Eligibility criteria included being 18 or older, having a primary DSM-5 PTSD diagnosis (American Psychiatric Association, 2013) assessed by the CAPS-5 (Weathers et al., 2018), being an immigrant residing in Sweden, able to read and write in English, providing digital informed consent, and having daily access to an internet-enabled device. Exclusion criteria included PTSD not being the primary concern, recent psychotropic medication changes (within four weeks), severe mental health conditions (e.g. mania, psychosis, substance use disorders, or acute suicide risk), and current engagement in trauma-focused CBT or Eye Movement Desensitisation and Reprocessing therapy. Engagement in other forms of psychotherapy did not lead to exclusion.

2.2. Recruitment and determination of eligibility

Participants were self-referred through the study website, with nationwide recruitment conducted primarily via social media (Facebook and Instagram). Prospective participants registered on a secure website, completed an online screening (demographics, index trauma, trauma history, and eligibility checklist), and self-reported measures: the Life Event Checklist (LEC-5; Gray et al., 2004), PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2018), Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001), and Web Screening Questionnaire (WSQ; Donker et al., 2009). Informed consent was obtained prior to participation. Those meeting initial criteria underwent a structured phone interview, including the CAPS-5 for eligibility confirmation. No in-person visits were required. Non-eligible applicants were notified by phone and, if appropriate, referred to alternative healthcare options. Eligible participants completed a baseline assessment before enrolment.

2.3. Trial procedure

Participants were randomly assigned 1:1 to either I-PE or a waitlist control group using a true randomisation service (www.random.org) by a blinded external researcher. Treatment began within three days of randomisation. Due to the intervention's nature, blinding was not possible for participants or therapists. Self-report assessments were completed on the same digital platform at baseline, post-treatment, and one month post-treatment. After the one-month follow-up, the waitlist group crossed over to I-PE. Both baseline and one-month follow-up assessments included a blinded CAPS-5 interview conducted via telephone by study assessors.

2.4. Therapists and assessors

The treatment was administered by four licensed clinical psychologists (mean number of years of clinical experience 8, range 2–18 years). All therapists received training on the CAPS-5 interview, the digital treatment platform, and I-PE, led by author MB who is a certified trainer in the PE treatment. Throughout the trial, therapists participated in bi-weekly group clinical supervision sessions led by KK and MB. Follow-up assessments were conducted by external and independent assessors who were blinded to the treatment conditions, with supervision provided by authors KK and MB.

Each participant was assigned a therapist who provided asynchronous support via a secure messaging system, responding within 48 hours on weekdays. Therapist responsibilities included progress monitoring, individualised feedback, motivation enhancement, and addressing barriers to treatment. Throughout the programme, interactive worksheets were used to help participants track emotional intensity, monitor changes in trauma-related beliefs, and document in vivo exposure tasks. The therapist-supported, individualised approach allowed the intervention to be adapted to each patient's unique situation, symptoms, and cultural background, supporting a more responsive and inclusive treatment experience.

2.5. The culturally inclusive I-PE treatment

The treatment was adapted from a prior I-PE intervention developed by Bragesjö et al. (2024) and evaluated in multiple clinical trials (Bragesjö et al., 2023, 2024; Bragesjö, Arnberg, Jelbring, et al., 2021; Bragesjö, Arnberg, Särnholm, et al., 2021). Interactive elements and exercise monitoring were derived from an exposure-based CBT intervention for cardiac patients (Särnholm et al., 2023). Authors JS, OM, MB, and KK adapted the treatment using an intentionally inclusive approach to cultural adaptation (Bernal et al., 2009; Resnicow et al., 1999; Molander

et al., 2024), rather than tailoring it to a specific ethnic group. Given the broad inclusion criteria – targeting immigrants residing in Sweden without prior knowledge of which subgroups would enrol – the intervention was designed to ensure cultural acceptability across a diverse participant population, thereby enhancing its overall reach and adoption (Molander et al., 2024). Following Spanhel et al.'s (2021) taxonomy for adapting digital mental health interventions, modifications were implemented across three domains: (1) content – featuring illustrated characters varying in cultural background, age, and trauma type; (2) methodology – organising modules into step-by-step sequences with simplified navigation to reduce cognitive load; and (3) procedures – employing easy-to-read, accessible English while avoiding culturally specific idioms and metaphors to support comprehension across diverse groups.

The I-PE programme was therapist-guided and consisted of eight sequential, text-based modules encompassing all core components of prolonged exposure (PE), a first-line, evidence-based treatment for PTSD (Foa et al., 2019). The treatment components included psychoeducation about PTSD and exposure rationale, imaginal exposure via written or audio-recorded trauma narratives, in vivo exposure assignments, and relapse prevention strategies. To foster engagement and inclusivity, the modules featured diverse cases and vignettes representing various backgrounds, identities, and trauma experiences. Imaginal exposure exercises were completed independently at home, with a recommended duration of approximately 20 min per session – consistent with research supporting comparable outcomes across different session lengths (Bryant et al., 2019; Foa et al., 2019; Minnen & Foa, 2006; Nacasch et al., 2015).

2.6. Outcomes and measures

2.6.1. Primary outcomes: feasibility and acceptability

Following Proctor et al.'s (2011) framework for implementation outcomes, feasibility was defined as the extent to which the I-PE intervention could be successfully delivered to the intended target group. It was operationalised through reach, participant retention across assessment points, adherence to treatment modules, acceptability, adverse events and cultural responsiveness and inclusivity.

Reach was evaluated by the proportion of eligible versus screened participants, primary reasons for exclusion, and monthly recruitment rates.

Retention was measured by the proportion of participants completing post-treatment and one-month follow-up assessments, including both self-reported questionnaires and clinician-administered CAPS-5 interviews.

Adherence was assessed by module completion, with participants completing at least five modules – covering all core treatment components – classified as treatment completers.

Acceptability was defined as participants' satisfaction with, perceived appropriateness of, and emotional safety during the intervention. Satisfaction was measured post-treatment using the Client Satisfaction Questionnaire-8 (CSQ-8; Attkisson & Greenfield, 1994) and perceived usability and engagement were assessed via the Internet Evaluation and Utility Questionnaire (IEUQ; Thorndike et al., 2008).

Adverse events were systematically monitored using the Negative Effects Questionnaire (NEQ; Rozental et al., 2019), which defines adverse events as self-perceived unwanted or negative experiences during treatment, independent of clinical expectations. This allowed for the standardised identification of participant-reported negative effects, while recognising that emotional distress may occur as an expected and transient part of the therapeutic process, particularly in trauma-focused interventions like prolonged exposure.

Cultural responsiveness (Huey et al., 2023) and inclusivity (Bernal et al., 2009; Resnicow et al., 1999) were assessed using open-ended questions administered post-treatment. Three items – developed by the research team – were designed to elicit feedback on the clarity of language, the relevance of vignettes and case examples, and the perceived cultural fit of the programme, guided by the taxonomy proposed by Spanhel et al. (2021). These questions were: (1) 'Do you think that the study and treatment were culturally adapted to suit your background? Why or why not?'; (2) 'Did you find any elements in the treatment content that seemed inappropriate based on your cultural background? Please describe'; and (3) 'How could the treatment be improved to suit you better?'.

2.7. Secondary outcomes

PTSD symptoms were assessed using the PCL-5, which evaluates the 20 DSM-5 symptoms on a four-point Likert scale, yielding a total score of 0 to 80 (Blevins et al., 2015). A score of ≥ 29 suggests probable PTSD in Swedish samples (Bondjers, 2020), and ≥ 10 -point reductions reflect clinically significant improvement (Weathers, 2013). Depressive symptoms were assessed using the PHQ-9 (Kroenke et al., 2001), with scores ranging from 0 to 27. PTSD severity was assessed using the CAPS-5, a structured interview evaluating the 20 DSM-5 symptoms on a 0–4 scale, with scores ranging from 0–80. The CAPS-5 has strong psychometric properties, including high internal consistency ($\alpha = 0.88$) and excellent interrater reliability (ICC = 0.91) (Weathers et al., 2018).

2.8. Statistical analyses

Statistical analyses used linear mixed-effects models with random intercepts for within- and between-group effects, and Cohen's *d* for effect sizes. Descriptive statistics were reported as frequencies, percentages, means, and standard deviations. Analyses were conducted in RStudio (version 2024.09.0 + 375; R Core Team, 2018) using the dplyr, psych, rstatix, and nlme packages.

3. Results

3.1. Sample characteristics

The characteristics of the recruited sample are detailed in Table 1. The sample primarily consisted of middle-aged women with university-level education. Most participants were employed full-time, while a smaller proportion were on sick leave at the time of the study. Participants reported diverse countries of birth, with the majority from English-speaking nations such as the United States, Canada, and the United Kingdom. Other represented countries included Brazil, Romania, Italy, Germany, and Ukraine. At baseline, 46% ($n = 14$) met the threshold for severe PTSD, with PCL-5 scores ≥ 50 . The index traumas varied, with interpersonal violence being the most common, followed by sexual violence. On average, participants had directly experienced approximately five traumatic events, as measured by the LEC-5. The mean time from the index trauma to treatment initiation was nearly 20 years, highlighting the chronic nature of trauma in this sample. Most participants reported at least one co-occurring mental health condition, as identified by the WSQ screener, and about one-third were using antidepressant medications (Table 2).

3.2. Reach of the intervention

The flow of study participants is illustrated in Figure 1. Of the 73 applicants who completed the online screening, 40 (41.1%) were included in the study. The primary reasons for exclusion were not meeting the diagnostic criteria for PTSD ($n = 18$; 24.6%), inability to be reached for a psychiatric interview ($n = 10$; 13.7%), or having another primary concern, such as suicidal ideation ($n = 7$; 9.6%). Recruitment averaged 20 participants per month, with the target achieved in six weeks.

3.3. Retention

Retention moderate to high and showed higher participation in online assessments compared to interviews and greater retention in the waitlist group. At post-treatment assessment, 12 out of 17 participants (70.6%) in the I-PE group and 12 out of 13

participants (92.3%) in the waitlist group completed the self-rated assessments. At the one-month follow-up, self-rated assessments were completed by 10 out of 17 participants (58.8%) in the I-PE group and 10 out of 13 participants (76.9%) in the waitlist group. For the CAPS-5 interview, completion rates were 12 out of 17 (70.6%) in the I-PE group and 11 out of 13 (84.6%) in the waitlist group.

3.4. Treatment adherence and satisfaction

A large proportion of participants (63%) were classified as treatment completers, having completed at least five modules and thus receiving all core components of the intervention. On average, participants completed 4.6 modules ($SD = 2.2$, range: 1–8). Treatment satisfaction, as measured by the CSQ-8, was high, with an average score of 26.1 ($SD = 3$; $n = 11$) out of 32, indicating that participants were 'very satisfied' with the I-PE.

3.5. Adverse events

At the follow-up, participants in the I-PE group completed the assessment of negative effects. On average, these participants reported 6.4 ($SD = 3.4$) negative effects. The most commonly reported adverse effects included increased emotional distress, such as heightened unpleasant memories, negative emotions, or stress levels. Most participants attributed these effects directly to the I-PE intervention, though some reported that their distress was influenced by external circumstances unrelated to treatment. Notably, two participants reported experiencing suicidal thoughts during the treatment period, with one explicitly linking these thoughts to I-PE. See Supplementary Table 1.

3.6. The use of easy-to-read English as a medium for treatment delivery

The language format primarily attracted participants from English-speaking countries such as the United States, Canada, and the United Kingdom, with lower representation from other parts of the world. Clinically, many participants demonstrated native or advanced proficiency in English. While the use of simplified English was effective for many, some participants perceived the language as overly simplistic.

3.7. Treatment experiences and cultural adaptations

The IEUQ scores indicated that participants found the I-PE helpful, trustworthy, and easy to use (see Supplementary Table 1). In the open-ended evaluation questions, most participants reported that they found the treatment both acceptable and applicable

Table 1. Clinical characteristics and sociodemographic of the sample ($N = 30$).

		Total ($n = 30$)	I-PE ($n = 17$)	Waitlist ($n = 13$)
Gender, n (%)	Women	29 (96.7%)	16 (53.3%)	13 (43.3%)
	Men	1 (3.3%)	1 (3.3%)	0
Age	Mean (SD)	40.4 (12)	41.7 (10.9)	38.6 (13.6)
	Range	22–77	22–73	30–77
Highest education, n (%)	College/university	27 (90%)	16 (53.3%)	11 (36.6%)
	Post-high school education, not university/ college, less than 3 years	1 (3.3%)	1 (3.3%)	0
	High school education, 3 years	2 (6.7%)	0	2 (6.7%)
Continent of birth	Europe	15 (50%)	8 (27%)	7 (23%)
	Asia	5 (16.7%)	3 (10%)	2 (6.7%)
	North America	4 (13%)	2 (6.7%)	2 (6.7%)
	South America	5 (16.7%)	4 (13.3%)	1 (3.3%)
	Africa	1 (3.3%)	0	1 (3.3%)
	Oceania	0	0	0
Occupational status, n (%)	Working full time	11 (36.7%)	7 (23.3%)	4 (13.3%)
	Working part-time	5 (16.7%)	2 (6.7%)	3 (10%)
	Student (university or equivalent)	6 (20%)	4 (13.3%)	2 (6.7%)
	Retired	2 (6.7%)	1 (3.3%)	1 (3.3%)
	Unemployed	4 (13.3%)	2 (6.7%)	2 (6.7%)
	On sick leave	2 (6.7%)	1 (3.3%)	1 (3.3%)
	Other ^a	7 (23.3%)	5 (16.7%)	2 (6.7%)
Current status in Sweden	Refugee	1 (3.3%)	1 (3.3%)	0
	Asylum seeker	0	0	0
	Residence permit	11 (36.7%)	6 (20%)	5 (16.7%)
	Swedish citizenship and permanent residence permit	18 (60%)	10 (33.3%)	8 (26.6%)
Type of trauma, n (%)	Sexual violence	9 (30%)[MOU1]	5 (16%)	4 (13%)
	Interpersonal violence (physical and psychological)	13 (43.3%)	7 (23.3%)	6 (20%)
	Combat or living in a war zone	2 (6.7%)	2 (6.7%)	0
	Witnessed sudden death or [MOU3] abduction	3 (10%)	2 (6.7%)	1 (3.3%)
	Life-threatening illness or injury	2 (6.7%)	1 (3.3%)	1 (3.3%)
	Fire or explosion	1 (3.3%)	0	1 (3.3%)
	Vehicle accident	1 (3.3%)	1 (3.3%)	0
	M (SD)	18.37 (15.1)	19.12 (15.9)	17.4 (14.6)
Time from index trauma, mean year (SD), range	Range	1–45	1–44	3–45
Number of reported traumatic events, LEC-5, mean (SD)	Happened to them	4.67 (2.4)	4.65 (2.2)	4.69 (2.7)
	Witnessed the event	1.6 (1.8)	1.65 (1.9)	1.69 (1.7)
	Learned about the event	1.67 (2.3)	1.65 (2.2)	1.69 (2.4)
Current stabilised medication, n (%)	Antidepressants (SSRIs, SNRIs, Tetracyclic)	8 (27%)	5 (16%)	3 (10%)
	Antihistamines	2 (6.7%)	1 (3.3)	1 (3.3)
	Central nervous system stimulants	2 (6.7%)	1 (3.3)	1 (3.3)
	Melatonin	2 (6.7%)	0	2 (6.7%)
	Beta-blockers	1 (3.3)	0	1 (3.3)
PCL-5 baseline	Mean (SD)	48.4 (11.2)	48.6 (10.7)	48 (12.3)
	Range	23–67	25–67	23–65
Current common mental disorders (WSQ screener) n (%)	≥50, severe PTSD, n (%)	14 (46%)	7 (23%)	7 (23%)
	Any	29 (96.7%)	16 (53.3%)	13 (43.3%)
	Depression	12 (40%)	7 (23.3%)	5 (16.7%)
	Generalized anxiety disorder	17 (56.7)	9 (30%)	8 (26.7%)
	Panic syndrome	23 (76.7)	14 (46.7%)	9 (30%)
	Panic with agoraphobia	12 (40%)	7 (23.3%)	5 (16.7%)
	Agoraphobia	14 (46.7%)	7 (23.3%)	7 (23.3%)
	Specific phobia	27 (90%)	15 (50%)	12 (40%)
	Social anxiety disorder	17 (56.7%)	9 (30%)	8 (26.7%)
	Obsessive compulsive disorder	24 (80%)	13 (43.3%)	11 (36.7%)
Native languages (reported by >1 participant)	English	6 (20%)	3 (10%)	3 (10%)
	Spanish	3 (10%)	2 (6.7%)	1 (3.3%)
	Italian	3 (10%)		3 (10%)
	Arabic	2 (6.7%)		2 (6.7%)
	German	2 (6.7%)	2 (6.7%)	
	Portuguese	2 (6.7%)	2 (6.7%)	
	Romanian	2 (6.7%)		2 (6.7%)
	Croatian	2 (6.7%)	1 (3.3%)	1 (3.3%)

^aThis category included various sources of income, for example contractual work or substitute, doctoral student, homemaker, freelancing, starting your own business, or self-employed.

without requiring additional cultural adaptations. Notably, none of the participants identified any culturally inappropriate elements within the intervention. IEUQ scores suggested that the I-PE was generally easy to understand, and participants appreciated its balance of theory and practical exercises. However,

some experienced confusion due to unclear terminology and a complex platform layout. Some participants also felt that the internet was not an effective delivery method for the treatment or that it wasn't a good fit. Suggestions for improvement included a more flexible timeline, hybrid formats (e.g. therapist contact via

Table 2. Treatment content.

Module	Description
1: Introduction to the treatment and platform	Psychoeducation on trauma and PTSD, including an overview of the treatment rationale. Introduction of breathing retraining techniques to alleviate general stress and reduce arousal levels.
2: In vivo exposure	Explanation of the rationale behind in vivo exposure and instructions for gradually confronting situations perceived as threatening or distressing due to trauma. Examples of common challenges encountered during in vivo exposure, such as reliance on safety behaviours, are provided along with strategies to address them. Digital worksheets are employed to assist participants in tracking shifts in perceived emotional intensity and identifying changes in negative beliefs about oneself, others, or the world.
3: Imaginal exposure	Explanation of the rationale for imaginal exposure, including instructions for conducting daily sessions of 20–30 min, followed by processing. Common challenges during imaginal exposure, such as over-engagement or under-engagement, are highlighted, along with strategies to address these issues effectively. Digital worksheets are utilised to help participants monitor changes in perceived emotional intensity and recognise shifts in negative beliefs.
4: Tips for working with exposure	Guidance on common challenges that may arise during exposure therapy and strategies for overcoming them.
5: Revisiting hot spots	Rationale for imaginal exposure on the most distressing parts of the traumatic memory, referred to as ‘hot spots,’ to target areas of heightened emotional intensity and distress. Instructions are provided on how to conduct this effectively. Digital worksheets are utilised to track shifts in perceived emotional intensity and document changes in negative beliefs about oneself, others, or the world.
6: Continued work with exposure	No new information is introduced in this module. Participants are encouraged to continue with working with revisiting the hotspots and in vivo exposure.
7: Continued work with exposure	No new information is provided. Participants are encouraged to continue to work with hot spots and in vivo exposure.
8: Relapse prevention	Summary of what the participant has learnt during treatment and make a relapse prevention plan. A digital worksheet is used to review progress, reflect upon how these changes were accomplished, and how to deal with any temporary increases in symptoms of post-traumatic stress in the future.

phone/video), and adaptations for complex PTSD. Additionally, some participants suggested incorporating synchronous therapist support via telehealth or phone calls to increase engagement and enhance accountability for completing exposure exercises.

3.8. Secondary outcomes

The I-PE group demonstrated substantial reductions in PTSD and depressive symptoms at the one-month follow-up compared to baseline. The proportion of

I-PE responders (≥ 10 -point reduction on the PCL-5) was 53% at post-treatment and 41% at the one-month follow-up. The mean PCL-5 score decreased by 19.7 points in the I-PE group (Cohen's $d = 1.45$; $p < .001$), compared to 8.3 points in the waitlist group (Cohen's $d = .58$; $p < .11$). CAPS-5 scores decreased by 8.1 points in the I-PE group (Cohen's $d = .88$; $p < .02$), compared to 3.6 points in the waitlist group (Cohen's $d = .41$; $p = .33$). Depressive symptoms, as measured by the PHQ-9, decreased by 4.8 points in the I-PE group (Cohen's $d = .80$; $p < .01$), compared to 2.3 points in the waitlist group (Cohen's $d = .46$; $p = .21$). No significant between-group differences in outcomes were observed. See Table 3.

4. Discussion

The current nested pilot study assessed the feasibility and acceptability of I-PE within the framework of a culturally inclusive, therapist-guided, internet-based PTSD treatment, among immigrants in Sweden proficient in easy-to-read English. The nested pilot was conducted as a preparatory phase for a larger RCT, given its novelty. In line with implementation science frameworks (Proctor et al., 2011), we systematically evaluated the feasibility, acceptability, and cultural responsiveness of the intervention. This framing allowed for a structured and replicable assessment of early implementation outcomes, a crucial step for scaling up trauma-focused treatments for underserved immigrant populations.

4.1. Feasibility and acceptability

The reach of the intervention exceeded expectations, enrolling 30 participants in just six weeks, underscoring the strong demand for trauma-focused digital interventions across Sweden. The I-PE intervention targeted immigrant populations; however, for many participants, the index traumas occurred within Sweden, suggesting a need for treatments to more extensively address the post-migration process. Within the study sample, 73% reported having accessed various forms of psychological treatment, therapy, or support. However, given their baseline symptom profiles and the well-documented barriers to accessing specialised trauma care, this may reflect an unmet need for trauma-specific interventions within the healthcare system – particularly among foreign-born individuals (Hollander, 2013). The findings indicate that language-agnostic digital interventions, such as the I-PE, have the potential to address this gap. Furthermore, the digital format may help reduce the stigma associated with seeking mental health care by allowing individuals to engage with the programme privately in their own homes (Bragesjö, Arnberg, Jelbring, et al., 2021). Retention was moderate to high, although

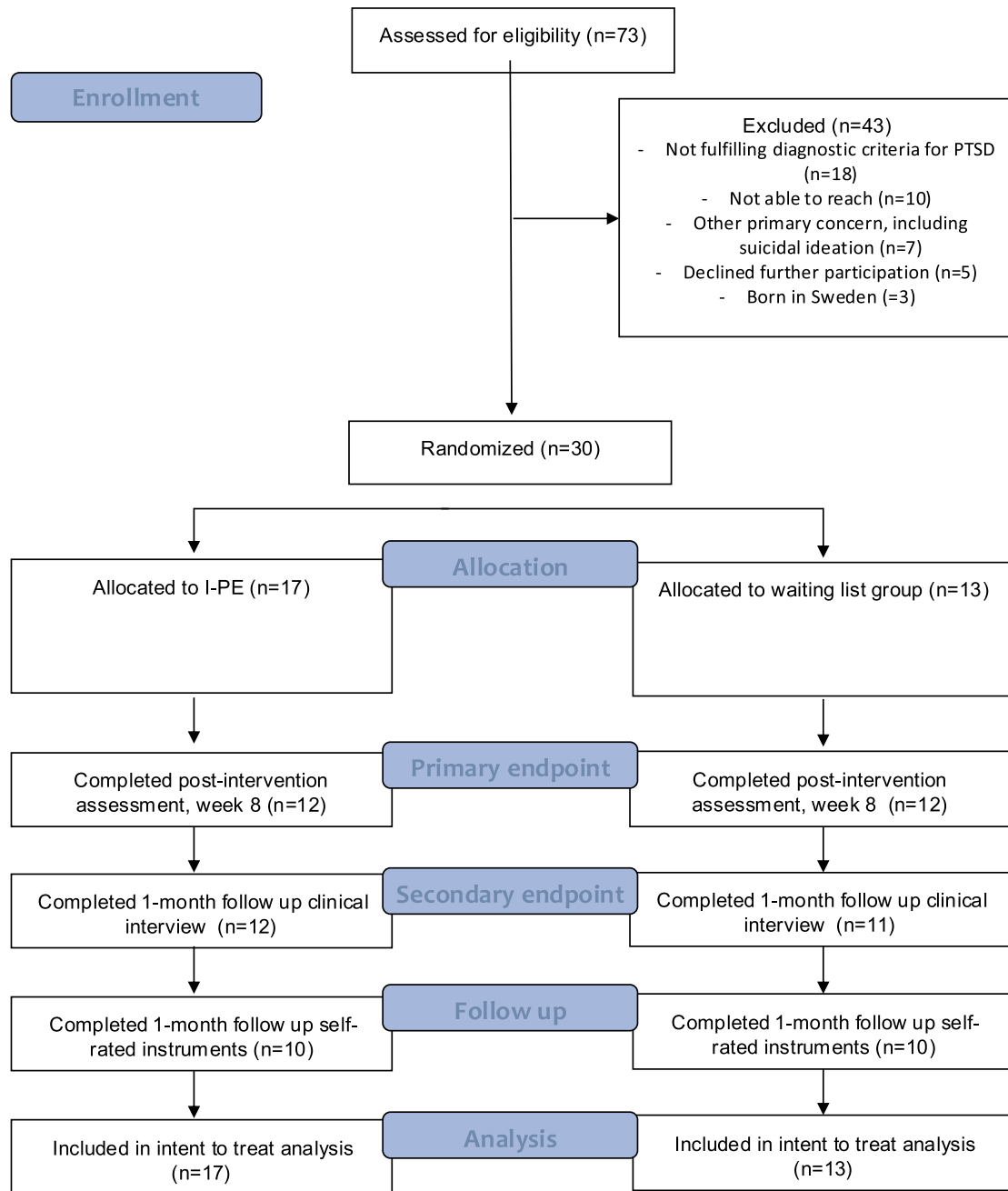


Figure 1. Participant flow.

Table 3. Secondary outcomes.

Outcome measure	Observed outcomes			Contrasts		Pre to 1 month follow-up	
	Pre treatment, mean (SD), n	Post treatment, mean (SD), n	1 month follow-up, mean (SD), n	Pre to post P value	Cohen's d (95% CI)	P value	Cohen's d (95% CI)
I-PE group (n = 17)				Within-group, I-PE			
PCL-5	48.6 (10.7), n = 17	29.2 (18.9), n = 12	28.9 (17.5), n = 10	<.001*	1.27 (.50, 2.14)	<.001*	1.45 (.57, 2.32)
PHQ-9	14.0 (6.07), n = 17	9.58 (5.42), n = 12	9.2 (5.79), n = 10	.02*	.76 (–.01, 1.52)	.01*	.80 (–.02, 1.61)
CAPS-5	36.4 (8.45), n = 17	–	28.3 (10.1), n = 12	–	–	.02*	.88 (.10, 1.65)
Waitlist group (n = 13)				Within-group, Waitlist			
PCL-5	48.0 (12.3), n = 13	36.3 (21.5), n = 12	39.7 (16.7), n = 10	.02*	.67 (–.14, 1.47)	.11	.58 (–.27, 1.41)
PHQ-9	15.7 (4.31), n = 13	13.2 (5.72), n = 12	13.4 (5.66), n = 10	.07	.49 (–.32, 1.28)	.21	.46 (–.38, 1.30)
CAPS-5	38.8 (8.90), n = 13	–	35.2 (8.75), n = 11	–	–	.33	.41 (–.41, 1.21)
				Between-groups, I-PE vs Waitlist			
–	–	–	–	.31	.10 (–.43, .64)	.05	.20 (–.36, .75)
–	–	–	–	.45	.41 (–.13, .95)	.34	.43 (–.13, .99)
–	–	–	–	–	–	.42	.43 (–.12, .98)

somewhat lower for clinician-administered interviews compared to self-report surveys, indicating potential areas for procedural refinement in future trials.

Despite high levels of comorbidity and significant external stressors, a notable majority of participants (63%) completed at least five modules, covering the core components of the treatment, and no participants dropping out, which indicate promising treatment adherence. Acceptability was rated high by participants, but some reported increased emotional distress. In this study, adverse events were defined as any participant-reported unwanted effects, in line with established definitions in implementation research (Rozental et al., 2019). While several participants reported increased distress during the intervention, this was understood as part of the expected trajectory of therapeutic emotional processing rather than evidence of treatment-induced harm. Most of these reports were attributed directly to the I-PE intervention, although some participants cited external life stressors as contributing factors. Notably, one participant experienced suicidal ideation, which was linked to the intervention. These findings underscore the emotional intensity inherent in exposure-based treatments and highlight the importance of ongoing risk assessment, monitoring, and access to clinical support. Prior research indicates that approximately half of individuals undergoing exposure therapy for PTSD experience an initial exacerbation of symptoms before improvement occurs (Foa et al., 2002). Given this, particular attention should be paid to individuals presenting with severe PTSD symptoms. To safeguard participant well-being, the study implemented weekly assessments to monitor distress levels, adverse effects, and emerging risk factors, allowing for timely intervention when necessary. In sum, apart from retention, the study yielded favourable feasibility and acceptability outcomes, comparable to those reported in internet-based PTSD trials involving non-immigrant samples (Bisson et al., 2022; Bragesjö et al., 2024; Ehlers et al., 2023; McLean et al., 2021; Simon et al., 2023), providing initial support for I-PE among immigrant populations in a Swedish context.

4.2. The use of easy-to-read English as a medium for treatment delivery

The present study evaluated the potential of easy-to-read English as a universal medium for delivering psychological interventions to diverse immigrant populations. While the I-PE demonstrated promise, the demographic characteristics of the sample limit the generalizability of the findings. Although the intervention engaged immigrants from various cultural backgrounds and countries of origin, the majority of participants were highly educated and came from English-speaking backgrounds. Notably, there was a

marked underrepresentation of participants from regions such as the African continent. The sample was not representative of the immigrant population in Sweden. The largest immigrant groups are from Syria, Iraq, Finland, Poland, Iran, Afghanistan, Somalia, and the former Republic of Yugoslavia (8.5%), while immigrants from English-speaking countries represent less than 1% of the total immigrant population (Statistics Sweden, n.d.). Overall, this raises concerns about the intervention's effectiveness for individuals with limited English proficiency. While simplified English may enhance accessibility for some, it may also reduce engagement or satisfaction among those with higher language proficiency. The skewed sample may reflect recruitment strategies or barriers such as limited digital literacy or difficulties navigating English-based systems. Expanding the diversity of future samples will be essential for assessing the broader cultural applicability of the I-PE. Future research should prioritise the inclusion of participants from non-English-speaking regions and those with lower levels of formal education. Offering the I-PE in multiple languages may further enhance its accessibility and relevance for diverse immigrant communities.

4.3. Cultural adaptations

Several cultural adaptations – such as language modifications, culturally diverse written case vignettes, and user-friendly delivery methods – were implemented in alignment with the taxonomy of cultural adaptations developed by Spanhel et al. (2021). Overall, the participants in the current sample perceived the I-PE as helpful, trustworthy, and easy to use, with no suggestions for further cultural modifications or reports of cultural inappropriateness. When suggesting improvements to the I-PE, participants highlighted more general, non-cultural issues, such as the need for a more flexible timeline or extended hybrid formats for therapist contact. Many internet-delivered CBTs, including I-PE, are based on universal evidence-based principles assumed to apply across cultures (Foa et al., 2013; Molander et al., 2024). Notably, the adaptations in the current study promoted cultural inclusiveness rather than tailoring interventions in relation to the specific cultural characteristics of individual immigrant populations. This approach made PE, a first line evidence based treatment (Foa, 2011), accessible to a broad range of immigrant populations, rather than focusing on a selected group. The results from the current study provide initial support for the I-PE from a cultural perspective, demonstrating its potential for broad applicability across diverse immigrant populations. However, as noted, the study primarily engaged participants from English-speaking countries, and the

I-PE should be evaluated in a more diverse range of populations beyond the current sample to confirm its cultural responsiveness across different groups.

4.4. Changes in symptoms

Finally, the I-PE group demonstrated promising reductions in PTSD symptoms at the one-month follow-up compared to baseline. Importantly, the study showed no signs of symptom deterioration in secondary outcomes (Foa et al., 2002); rather, the results indicated improvement, including in the waitlist group. This finding is particularly important from an ethical perspective, as it suggests that participation in a continued RCT, including placement on the waitlist, will not result in harm or symptom deterioration.

4.5. Limitations

As discussed, the sample did not fully represent the broader immigrant population with PTSD, as reliance on digital platforms and English materials likely excluded groups with limited access or proficiency. A formal cultural adaptation framework was not applied in the development of the intervention. Instead, open-ended questions were administered post-treatment to explore participants' subjective experiences of cultural relevance, inclusiveness, and accessibility. However, no standardised measure was used to systematically evaluate these aspects of the I-PE. Another limitation was the absence of user feedback during the development phase of the intervention, which would have been beneficial for ensuring its initial credibility. To reduce attrition in the upcoming RCT, additional administrative staff will be hired to provide more comprehensive follow-up and participant support.

5. Conclusions

The findings from this nested pilot study suggest that I-PE, a culturally inclusive, therapist-guided, internet-based PTSD treatment, may be an acceptable and feasible intervention for immigrants from diverse cultural backgrounds. While the treatment showed promise, the sample primarily included participants with relatively high educational attainment and adequate English proficiency, which may limit generalizability to a wider immigrant population in Sweden. Easy-to-read English may not be a sufficient treatment format for all segments of the broader immigrant population, particularly those with different language proficiencies. Digital interventions can however help overcome both language and cultural obstacles in trauma treatment. Future research should explore the applicability of I-PE in more linguistically and socioeconomically diverse groups, and examine long-term effects,

comorbid conditions, cost-effectiveness to enhance implementation-relevant knowledge on PTSD in immigrant populations within the MTG consortium (Molander et al., 2024).

Ethics approval and consent to participate

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors upon request given that the request comply with Swedish and EU laws regulating protection of identifiable data.

Use of AI

ChatGPT (GPT-40) has been used for language proofreading but not for any other generative functions.

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References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).
- Attkisson, C. C., & Greenfield, T. K. (1994). Client satisfaction questionnaire-8 and service satisfaction scale-30. In M. E. Maruish (Ed.), *The use of psychological testing for treatment planning and outcome assessment* (pp. 402–420). Lawrence Erlbaum Associates, Inc.
- Bernal, G., Jiménez-Chafey, M. I., & Domenech Rodríguez, M. M. (2009). Cultural adaptation of treatments: A resource for considering culture in evidence-based

- practice. *Professional Psychology: Research and Practice*, 40(4), 361–368. <https://doi.org/10.1037/a0016401>
- Bisson, J. I., Ariti, C., Cullen, K., Kitchiner, N., Lewis, C., Roberts, N. P., Simon, N., Smallman, K., Addison, K., & Bell, V. (2022). Guided, internet based, cognitive behavioural therapy for post-traumatic stress disorder: Pragmatic, multicentre, randomised controlled non-inferiority trial (RAPID). *BMJ*, 377, e069405. <https://www.bmj.com/content/377/bmj-2021-069405.short>.
- Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The posttraumatic stress disorder checklist for DSM-5 (PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress*, 28(6), 489–498.
- Bondjers, K. (2020). *Post-traumatic stress disorder—assessment of current diagnostic definitions* [Doctoral dissertation]. Acta Universitatis Upsaliensis.
- Bragesjö, M., Arnberg, F. K., Jelbring, A., Nolkantz, J., Särnholm, J., Olofsdotter Lauri, K., Von Below, C., & Andersson, E. (2021). Demanding and effective: Participants' experiences of internet-delivered prolonged exposure provided within two months after exposure to trauma. *European Journal of Psychotraumatology*, 12(1), 1885193. <https://doi.org/10.1080/20008198.2021.1885193>
- Bragesjö, M., Arnberg, F. K., Lauri, K. O., Aspvall, K., Särnholm, J., & Andersson, E. (2023). Condensed internet-delivered prolonged exposure provided soon after trauma: A randomised trial. *Psychological Medicine*, 53(5), 1989–1998.
- Bragesjö, M., Arnberg, F. K., Särnholm, J., Lauri, K. O., & Andersson, E. (2021). Condensed internet-delivered prolonged exposure provided soon after trauma: A randomised pilot trial. *Internet Interventions*, 23, 100358.
- Bragesjö, M., Ivanov, V. Z., Andersson, E., & Rück, C. (2024). Exploring the feasibility and acceptance of huddinge online prolonged exposure therapy (HOPE) for severe and complex PTSD. *European Journal of Psychotraumatology*, 15(1), 2320607. <https://doi.org/10.1080/20008066.2024.2320607>
- Bryant, R. A., Kenny, L., Rawson, N., Cahill, C., Joscelyne, A., Garber, B., Tockar, J., Dawson, K., & Nickerson, A. (2019). Efficacy of exposure-based cognitive behaviour therapy for post-traumatic stress disorder in emergency service personnel: A randomised clinical trial. *Psychological Medicine*, 49(9), 1565–1573.
- Donker, T., van Straten, A., Marks, I. M., & Cuijpers, P. (2009). A brief web-based screening questionnaire for common mental disorders: Development and validation. *Journal of Medical Internet Research*, 11(3), e1134. <https://doi.org/10.2196/jmir.1134>
- Ehlers, A., Wild, J., Warnock-Parkes, E., Grey, N., Murray, H., Kerr, A., Rozental, A., Thew, G., Janecka, M., & Beierl, E. T. (2023). Therapist-assisted online psychological therapies differing in trauma focus for post-traumatic stress disorder (STOP-PTSD): A UK-based, single-blind, randomised controlled trial. *The Lancet Psychiatry*, 10(8), 608–622.
- Foa, E., Hembree, E. A., Rothbaum, B. O., & Rauch, S. (2019). *Prolonged exposure therapy for PTSD: Emotional processing of traumatic experiences – therapist guide* (2nd ed.). Oxford University Press.
- Foa, E. B. (2011). Prolonged exposure therapy: Past, present, and future. *Depression and Anxiety*, 28(12), 1043–1047. <https://doi.org/10.1002/da.20907>
- Foa, E. B., Gillihan, S. J., & Bryant, R. A. (2013). Challenges and successes in dissemination of evidence-based treatments for posttraumatic stress: Lessons learned from prolonged exposure therapy for PTSD. *Psychological Science in the Public Interest*, 14(2), 65–111. <https://doi.org/10.1177/1529100612468841>
- Foa, E. B., Zoellner, L. A., Feeny, N. C., Hembree, E. A., & Alvarez-Conrad, J. (2002). Does imaginal exposure exacerbate PTSD symptoms? *Journal of Consulting and Clinical Psychology*, 70(4), 1022–1028. <https://doi.org/10.1037/0022-006X.70.4.1022>
- Frans, Ö, Rimmö, P-A, Åberg, L., & Fredrikson, M. (2005). Trauma exposure and post-traumatic stress disorder in the general population. *Acta Psychiatrica Scandinavica*, 111(4), 291–290. <https://doi.org/10.1111/j.1600-0447.2004.00463.x>
- Gray, M. J., Litz, B. T., Hsu, J. L., & Lombardo, T. W. (2004). Psychometric properties of the life events checklist. *Assessment*, 11(4), 330–341. <https://doi.org/10.1177/1073191104269954>
- Hamblen, J. L., Norman, S. B., Sonis, J. H., Phelps, A. J., Bisson, J. I., Nunes, V. D., Megnin-Viggars, O., Forbes, D., Riggs, D. S., & Schnurr, P. P. (2019). A guide to guidelines for the treatment of posttraumatic stress disorder in adults: An update. *Psychotherapy*, 56(3), 359.
- Hollander, A.-C. (2013). Social inequalities in mental health and mortality among refugees and other immigrants to Sweden—epidemiological studies of register data. *Global Health Action*, 6(1), 21059.
- Huey, S. J., Park, A. L., Galán, C. A., & Wang, C. X. (2023). Culturally responsive cognitive behavioral therapy for ethnically diverse populations. *Annual Review of Clinical Psychology*, 19, 51–78. <https://doi.org/10.1146/annurev-clinpsy-080921-072750>
- Kessler, R. C., Foster, C. L., Saunders, W. B., & Stang, P. E. (1995). Social consequences of psychiatric disorders, I: Educational attainment. *American Journal of Psychiatry*, 152(7), 1026–1032.
- Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, 21(3), 169–184. <https://doi.org/10.1002/mpr.1359>
- Koenen, K. C., Ratanatharathorn, A., Ng, L., McLaughlin, K. A., Bromet, E. J., Stein, D. J., Karam, E. G., Ruscio, A. M., Benjet, C., & Scott, K. (2017). Posttraumatic stress disorder in the world mental health surveys. *Psychological Medicine*, 47(13), 2260–2274.
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, 16(9), 606–613.
- McFarlane, A. C., Atchison, M., Rafalowicz, E., & Papay, P. (1994). Physical symptoms in post-traumatic stress disorder. *Journal of Psychosomatic Research*, 38(7), 715–726.
- McLean, C. P., Foa, E. B., Dondanville, K. A., Haddock, C. K., Miller, M. L., Rauch, S. A., Yarvis, J. S., Wright, E. C., Hall-Clark, B. N., & Fina, B. A. (2021). The effects of web-prolonged exposure among military personnel and veterans with posttraumatic stress disorder. *Psychological Trauma: Theory, Research, Practice, and Policy*, 13(6), 621.
- Minnen, A. V., & Foa, E. B. (2006). The effect of imaginal exposure length on outcome of treatment for PTSD. *Journal of Traumatic Stress*, 19(4), 427–438. <https://doi.org/10.1002/jts.20146>
- Missinne, S., & Bracke, P. (2012). Depressive symptoms among immigrants and ethnic minorities: A population based study in 23 European countries. *Social Psychiatry and Psychiatric Epidemiology*, 47(1), 97–109.

- Molander, O., Särnholm, J., Hollander, A.-C., & Jayaram-Lindström, N. (2024). Mind the Gap: Scaling-up access to culturally adapted mental health treatments for minority populations. *BMC Global and Public Health*, 2(1), 61. <https://doi.org/10.1186/s44263-024-00092-z>
- Morina, N., Wicherts, J. M., Lobbrecht, J., & Priebe, S. (2014). Remission from post-traumatic stress disorder in adults: A systematic review and meta-analysis of long term outcome studies. *Clinical Psychology Review*, 34(3), 249–255.
- Nacasch, N., Huppert, J. D., Su, Y.-J., Kivity, Y., Dinshtein, Y., Yeh, R., & Foa, E. B. (2015). Are 60-minute prolonged exposure sessions with 20-minute imaginal exposure to traumatic memories sufficient to successfully treat PTSD? A randomized noninferiority clinical trial. *Behavior Therapy*, 46(3), 328–341.
- Proctor, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., Griffey, R., & Hensley, M. (2011). Outcomes for implementation research: Conceptual distinctions, measurement challenges, and research agenda. *Administration and Policy in Mental Health*, 38(2), 65–76. doi:10.1007/s10488-010-0319-7
- Resnicow, K., Baranowski, T., Ahluwalia, J. S., & Braithwaite, R. L. (1999). Cultural sensitivity in public health: defined and demystified. *Ethnicity & Disease*, 9(1), 10–21.
- R Core Team. (2018). *R: A language and environment for statistical computing* [Computer software]. R Foundation for Statistical Computing. <https://www.R-project.org/>
- Rozenal, A., Kottorp, A., Forsström, D., Månsson, K., Boettcher, J., Andersson, G., Furmark, T., & Carlbring, P. (2019). The negative effects questionnaire: Psychometric properties of an instrument for assessing negative effects in psychological treatments. *Behavioural and Cognitive Psychotherapy*, 47(5), 559–572. <https://doi.org/10.1017/S1352465819000018>
- Särnholm, J., Skúladóttir, H., Rück, C., Axelsson, E., Bonnert, M., Bragesjö, M., Venkateshvaran, A., Ólafsdóttir, E., Pedersen, S. S., Ljótsson, B., & Braunschweig, F. (2023). Cognitive behavioral therapy improves quality of life in patients with symptomatic paroxysmal atrial fibrillation. *Journal of the American College of Cardiology*, 82(1), 46–56. <https://doi.org/10.1016/j.jacc.2023.04.044>
- Simon, N., Lewis, C. E., Smallman, K., Brookes-Howell, L., Roberts, N. P., Kitchiner, N. J., Ariti, C., Nolle, C., McNamara, R., & Bisson, J. I. (2023). The acceptability of a guided internet-based trauma-focused self-help programme (spring) for post-traumatic stress disorder (PTSD). *European Journal of Psychotraumatology*, 14(2), 2212554. <https://doi.org/10.1080/20008066.2023.2212554>
- Song, S. J., Subica, A., Kaplan, C., Tol, W., & De Jong, J. (2018). Predicting the mental health and functioning of torture survivors. *The Journal of Nervous and Mental Disease*, 206(1), 33–39.
- Spanhel, K., Balci, S., Feldhahn, F., Bengel, J., Baumeister, H., & Sander, L. B. (2021). Cultural adaptation of internet- and mobile-based interventions for mental disorders: A systematic review. *Npj Digital Medicine*, 4(1), 1–18. <https://doi.org/10.1038/s41746-021-00498-1>
- Statistics Sweden. (n.d.). Foreign-born in Sweden. <https://www.scb.se>. Retrieved February 15, 2025, from <https://www.scb.se/hitta-statistik/sverige-i-siffror/manniskorna-i-sverige/utrikes-fodda-i-sverige/>
- Stein, M. B., Jain, S., Parodi, L., Choi, K. W., Maihofer, A. X., Nelson, L. D., Mukherjee, P., Sun, X., He, F., & Okonkwo, D. O. (2023). Polygenic risk for mental disorders as predictors of posttraumatic stress disorder after mild traumatic brain injury. *Translational Psychiatry*, 13(1), 24.
- Steinert, C., Hofmann, M., Leichenring, F., & Kruse, J. (2015). The course of PTSD in naturalistic long-term studies: High variability of outcomes. A systematic review. *Nordic Journal of Psychiatry*, 69(7), 483–496. <https://doi.org/10.3109/08039488.2015.1005023>
- Thorndike, F. P., Saylor, D. K., Bailey, E. T., Gonder-Frederick, L., Morin, C. M., & Ritterband, L. M. (2008). Development and perceived utility and impact of an internet intervention for insomnia. *E-Journal of Applied Psychology: Clinical and Social Issues*, 4(2), 32.
- Weathers, F. W. (2013). *The PTSD checklist for DSM-5 (PCL-5)*. National Center for PTSD.
- Weathers, F. W., Bovin, M. J., Lee, D. J., Sloan, D. M., Schnurr, P. P., Kaloupek, D. G., Keane, T. M., & Marx, B. P. (2018). The clinician-administered PTSD scale for DSM-5 (CAPS-5): Development and initial psychometric evaluation in military veterans. *Psychological Assessment*, 30, 383–395. <https://doi.org/10.1037/pas0000486>