

Meeting the Mental Health Needs of Refugees: A Qualitative Study to Adapt a Digital Sleep Intervention

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Abstract

Background: Mental burden among refugees is high, but access to mental healthcare in Germany is hindered by numerous barriers. Digital interventions are being suggested to facilitate access to mental healthcare. For example, the digital sleep intervention Sleep-e has been culturally adapted for refugees in Germany mainly coming from African and Middle East countries. With the increasing number of refugees from Ukraine and the associated diversity of cultural backgrounds among refugees in Germany, it is essential to provide appropriate interventions for this target group as well.

Objective: The current study aims to investigate the perceived appropriateness of the digital sleep intervention in its original and in the culturally adapted version among refugees in Germany, hereby exploring and possibly contrasting the needs of refugees coming from Ukraine and from other countries of origin.

Methods: Six refugees from Ukraine and seven refugees from other countries of origin went through at least one module of the digital sleep intervention, either in its version adapted for refugees from African and Middle East countries, or its original version for Germans (five participants tested both versions of the intervention). In a total of 17 semi-structured interviews and 9 Think-Aloud sessions, the perceived cultural appropriateness as well as suggestions for adaptations were explored. Participants' qualitative feedback was transcribed, summarised in a category system, and analysed using structured qualitative content analysis.

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Conclusions: The results of the present study suggest that refugees from diverse countries of origin, including Ukraine, might be reached with the digital sleep intervention. However, for Ukrainian participants in particular, neither the adapted nor the original version of the intervention appears to be fully culturally appropriate, likely due to identification difficulties and an identity conflict regarding the refugee context. This illustrates the relevance of including a target group with diverse socio-cultural backgrounds in the development process of digital interventions to ensure broad identification and, herewith, cultural appropriateness. Clinical Trial: Freiburg Registry of Clinical Studies FRKS004288

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Original Manuscript

Original Paper

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Authors' contributions:

MB and KS initiated this study. MB, AK, LBS, and KS contributed to the design of this study. Data acquisition was facilitated by HB providing the platform for intervention access, DL providing the original intervention GET.ON Recovery, and JU providing access to all further materials and facilities. MB largely contributed to the study preparation, recruitment, data collection, analyses, and interpretation. HB and DL provided expertise in digital interventions, AK, LBS, JU, and KS supervised the whole project. MB and KS wrote the draft of the manuscript. All authors contributed to the further writing of the manuscript and approved the final version of it.

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Abstract

Background: Mental burden among refugees is high, but access to mental healthcare in Germany is hindered by numerous barriers. Digital interventions are being suggested to facilitate access to mental healthcare. For example, the digital sleep intervention *Sleep-e* has been culturally adapted for refugees in Germany mainly coming from African and Middle East countries. With the increasing number of refugees from Ukraine and the associated diversity of cultural backgrounds among refugees in Germany, it is essential to provide appropriate interventions for this target group as well.

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Trial Registration: Freiburg Registry of Clinical Studies FRKS004288

Keywords: Ukraine; eHealth; sleep disturbances; low-threshold treatment; culturally sensitive treatment

Introduction

The number of people forced to seek refuge in new countries is increasing worldwide [1]. These people, hereafter referred to as refugees, are exposed to multiple stressors before, during, and after leaving their home countries, and they therefore suffer from increased psychological vulnerability and prevalence of mental disorders [2,3]. However, there are major gaps in mental healthcare for refugees in the receiving countries such as Germany [4,5], resulting from a lack of (culturally sensitive) services, language barriers, differences in help-seeking behaviour and residence status, as well as stigmatisation, among other barriers [6–8]. To overcome these barriers, culturally adapted digital interventions focusing on transdiagnostic or somatically perceived symptoms are being discussed and investigated as low-threshold offers for refugees [9,10]. In the general population, digital interventions show a good effectiveness for a wide range of mental health conditions [11,12]. When offered to refugees, cultural adaptation is suggested to be essential for the acceptance and effectiveness face-to-face and digital interventions, recognising the specific burdens associated with the refugee context [13–15]. In this context, the question of the cultural specificity of the adaptations is becoming increasingly important [16]. The target group of refugees is characterised by a diversity of countries of origin that is constantly changing due to events in the global political situation, such as the start of the war in Ukraine 2022. To increase refugees with diverse backgrounds using and profiting from digital interventions, these interventions need to be provided in a culturally sensitive (i.e. with an openness to diverse backgrounds) – in contrast to a culturally specific (i.e. separately for diverse backgrounds) – way [17]. Yet, so far, there are only a few digital interventions developed for refugees from diverse countries of origin [18–20].

Based on feedback from refugees in Germany, who at the time were mainly coming from African and Middle East countries of origin, the digital sleep intervention *Sleep-e* was culturally adapted for this target group with the aim of making it accessible to people sharing the experience of flight. Thereby, 1) factors related to the flight (e.g., separation from the family and the home country), and 2) factors related to the habits, values, and treatment concepts of their non-Western countries of origin were considered [21]. The culturally adapted version of the digital sleep intervention was accepted by refugees from African and Middle East countries [19]. Based on the increasing number of refugees in Germany coming from Ukraine since the beginning of the war in Ukraine in 2022 [22], it seems essential to make such interventions available to this target group as well. Ukrainian refugees are shown to differ from refugees from other countries of origin, among others, in terms of socio-demographic aspects (age, gender), socio-cultural aspects, differences in the flight route, and legal rights and welcoming culture upon arrival in Germany [23–26]. Building on the named two previous studies [19,21], the present qualitative study aimed to investigate differences in the perceived cultural appropriateness and the cultural needs in regard to the digital sleep intervention among refugees from Ukraine and refugees from other, predominantly African and Middle East countries of origin. A culturally adapted version and a non-adapted version of the intervention were used, and factors influencing the perceived cultural appropriateness were additionally investigated.

Methods

Recruitment and participants

This study was conducted in two sub-samples: refugees from Ukraine and refugees from countries other than Ukraine. Recruitment was carried out February to April 2023 via various institutions and associations working in the refugee and migration context in Germany, mainly Freiburg and Karlsruhe, as well as via personal contacts. Inclusion criteria were the experience of flight, age of majority, and sufficient knowledge of German or English. Reported reasons for non-participation in the study were mostly language barriers or difficulties in finding the time for study participation. The

participants could win a €20 voucher as compensation for their efforts.

There were six participants from Ukraine (23-66 years old), and seven participants coming from Afghanistan, Gambia, Syria, Madagascar, Cameroon, Ecuador, and Eritrea (26-41 years old), referred to below as refugees from other countries. On average, the participants revealed subthreshold sleep problems. Detailed socio-demographic data are shown in Table 1.

Procedure

The study was conducted and documented in accordance with the guidelines for research with refugees [27] and the Standards for Reporting Qualitative Research [28]. The study was registered in the Freiburg Clinical Trials Registry (registration number FRKS004288) and approved by the ethics committee of the University of Freiburg (no. 22-1452-S2).

Data collection took place in one-to-one sessions (approximately 90 minutes of video-based or in-person meetings in the Institute of Medical Psychology and Medical Sociology, University of Freiburg, Germany) with MB (see Table 1 for further information). Sessions were conducted in German, English, or French and were audio-recorded. After receiving detailed information on the study procedure and giving their informed consent, each participant tested at least one module of the digital sleep intervention and completed an online questionnaire (sociodemographic data, Insomnia Severity Index with 7 Likert-scale items 0-4 [29], Client Satisfaction Questionnaire adapted to Internet-based interventions with 8 Likert-scale items 1-4 [30]). Subsequently, semi-structured interviews were conducted in order to assess the participants' experiences with the content and design of the tested module, its appropriateness for themselves and for refugees in general, and their own usage behaviour (see Multimedia Appendix 1 for the interview guideline). The think-aloud method [31] was additionally used with eight participants while they went through the modules, depending on language skills and time resources.

Table 1. Sociodemographic data and information on the study conduction concerning each participant.

Subgroup	ID	Home country / Gender	Education	Age (years)	Years in Germany	Psychotherapy (current/past)	Insomnia severity ^a	Tested modules	Study mode / study language	Duration (minutes) / # codes
Ukraine										
	01_ukr	Ukraine / f	High school	45	1	no	8	na1: Q, I a1: T, I	Presence/ Ger	79 / 154
	02_ukr	Ukraine / f	High school	45	1	no	15	na2: Q, T, I a2: I	Presence/ Ger	53 / 57
	03_ukr	Ukraine / f	High school	66	1	no	7	na3: Q, T, I a3: I	Presence/ En	57 / 105
	04_ukr	Ukraine / f	High school	26	1	yes	15	a2: Q, T, I	Online/ En	42 / 65
	05_ukr	Ukraine (Nigeria) / m	High school	23	1	no	15	a3: Q, T, I	Presence/ En	63 / 108
	06_ukr	Ukraine / f	High school	33	0.5	yes	19	a4: Q, I	Online/ En	15 / 42
				M=39.7, SD=15.9	M=0.9, SD=0.2		M=13.2, SD=4.7			
Other countries										
	07_oth	Afghanistan / m	High school	41	8	no	9	na1: Q, I	Online/ Ger	23 / 18
	08_oth	Gambia / m	No degree	27	3	yes	18	na2: Q, I a3: I	Presence/ En	45 / 71
	09_oth	Syria / m	High school	26	7.5	yes	8	na3: Q, T, I a4: T, I	Presence/ Ger	74 / 125
	10_oth	Madagascar / m	High school	30	10	yes	18	a1: Q, T, I	Presence/ Fr	37 / 31
	11_oth	Cameroon / f	High school	33	1.5	no	6	a2: Q, I	Online/ Fr	35 / 13
	12_oth	Ecuador / m	High school	32	0.5	no	15	a3: Q, T	Presence/ Ger	33 / 18
	13_oth	Eritrea / m	No degree	31	8	yes	12	a4: Q, I	Online/ Ger	11 / 23
				M=31.4, SD=4.9	M=5.5, SD=3.7		M=12.3, SD=4.9			

^aInsomnia Severity Scores [29]: 0-7, not clinically significant; 8-14, subthreshold; 15-21, clinical (moderate); 22-28, clinical (severe).

Abbreviations: f, female; m, male; M, mean; SD, standard deviation; na, non-adapted version of the digital sleep intervention (modules 1-3); a, adapted version of the digital sleep intervention (modules 1-4); Q, questionnaire; I, interview; T, think-aloud; Ger, German; En, English; Fr, French.

Intervention

Two versions of the digital sleep intervention *Sleep-e* were used, which is a cognitive-behavioural digital brief intervention for sleep problems available in English and German. The intervention was provided on the eHealth platform eSano. The non-adapted version [21] is an unguided digital intervention based on the intervention *GET.ON Recovery* [32,33], which was developed and evaluated for German employees with sleep problems. Adaptations were conducted based on feedback from healthcare professionals working with refugees as well as refugees from Algeria, Eritrea, Iran, Iraq, and Syria [21], complemented by previously conducted cultural adaptations of digital interventions [34]. The resulting culturally adapted version was aimed at being suitable for refugees from diverse countries of origin in Germany, with the idea of a shared experience of pre-, peri-, and post-migration stressors. Its feasibility, acceptance, and preliminary effectiveness was investigated among refugees mainly coming from African and Middle East countries [19]. Table 2 provides information on the content of both versions of the intervention. Information on the adaptations suggested [21] and conducted [19] can be found in the respective articles.

Table 2. Overview over the modules of both used versions of the Sleep-e intervention.

	Content of the non-adapted version [21]	Content of the culturally adapted version [19]
Module 1		
	Introduction of example characters from Germany (text-based with photo), quiz on sleep and sleep-promoting behaviours, sleep hygiene, information on pharmacotherapeutic interventions, sleep diary	Introduction by a health expert, introduction of example characters from Arabic-speaking countries (video-based), psychoeducation on sleep problems, reflection on reasons for participation, relaxation exercise, sleep diary
Module 2		
	Psychoeducation about rumination behaviour (e.g. explanatory video), exercises on the topic of rumination (e.g. audio imagination exercise)	Psychoeducation on sleep hygiene, exercise on sleep hygiene rules, psychoeducation on sleep medication, relaxation exercise, sleep diary
Module 3		
	Reflection on the results, consolidation of what has been learnt, planning of future exercises, further offers of help, information on problems associated with poor sleep	Psychoeducation on the topic of rumination, exercises on the topic of rumination, relaxation exercise, exercise on sleep hygiene rules, sleep diary
Module 4		
	-	Psychoeducation on problems associated with poor sleep, information on further psychological care services, relaxation exercise, reflection on results and reasons for further implementation of the exercises, exercise on sleep hygiene rules, sleep diary

Data analysis

Before analysing data, the authors involved in the analysis (MB, KS) reflected on their own assumptions regarding the topic of the study. The following assumptions were identified: *Refugees are often not well off and are grateful for any form of support. Ukrainian refugees and refugees from other countries of origin differ in their needs.* The participants were not involved in data analysis.

The collected data comprised 26 audio-recordings (9 think-aloud sessions, 17 interviews). The recordings were automatically transcribed using Adobe Premiere (2021) and post-processed by MB based on the transcription rules for computer-assisted analysis according to Kuckartz and Rädiker [35]. The data was analysed using structured qualitative content analysis (primary analysis [35,36]) with a combination of content-related, evaluative, and contrasting categories [37]. MAXQDA 2022 [38] software was used to code a total of 830 text passages. The categories were created and continuously adapted by MB using an inductive/ deductive hybrid approach [37], primarily based on the transcripts of the Ukrainian participants. This enabled the deductive inclusion and validation of theories and questions derived from the two previous studies, as well as the inductive inclusion of new aspects (e.g., in regard to the war in Ukraine) introduced by the participants. In order to assess intercoder reliability and ensure the comprehensibility of the category definitions, two transcripts were additionally coded and discussed by KS. The different category formats were used to identify possible group differences (contrasting categories), evaluations (evaluative categories), and factors influencing the evaluations (content-related categories) as well as their interactions. As part of secondary analysis, valence analyses [36] were used to compare the ratings of the intervention parts based on the evaluative categories (positive vs. negative feedback regarding the adapted vs. non-adapted intervention or regarding refugees from Ukraine vs. from other countries of origin). In addition, the coding frequencies by categories, subgroups, and interventions were compared in frequency analyses, and overlaps between evaluative categories and contrasting or content-related categories were examined in a group comparison. Such frequency analyses can provide an insight into possible correlations, but are of limited scalability due to the lack of objectivity of the number of coding. The qualitative results are shown along the developed category system, underpinned by quotes from the participants. The references of the quoted text passages comprise the number of the participant (01-13), the subgroup (coming from Ukraine [ukr] vs. from other countries of origin [oth]), the modules processed (modules 1-4 of the adapted version of the intervention [a1-a4], modules 1-3 of the non-adapted version of the intervention [na1-na3]), the type of assessment (think-aloud [T], interview [I]) and the position in the transcript. The quantitative data from the questionnaires was analysed descriptively.

Results

Perceived cultural appropriateness of the digital sleep intervention

The developed category system (see Multimedia Appendix 2) resulted in four categories informing about the perceived cultural appropriateness and the cultural needs among the participating refugees from Ukraine versus from other countries of origin regarding the digital sleep intervention (1) *concept: adapted version*, 2) *concept: non-adapted version*, 3) *comparison: adapted/ non-adapted version*, 4) *use of the intervention*).

- Insert Figure 1 about here -

Across both versions of the intervention and both subgroups, there was more positive than negative feedback (see Figure 1; *You can take a lot from it also. And you can learn easily also.* [08_oth_a3(na2)_I, pos. 211] // *To have the training (...), it's much easier. Yeah and it*

could solve your problem. [06_ukr_a4_I, pos. 60]). An overall positive attitude also was revealed in relatively high ratings in the Client Satisfaction Questionnaire adapted to Internet-based Interventions, with an overall mean score of 26.0 (SD=4.7) and similar means of the different versions or subgroups.

The adapted version of the intervention was rated positively in both groups, but the feedback from the Ukrainian participants revealed a rather heterogeneous picture. With regard to the conception of the intervention, linguistic simplifications (e.g., subtitles), the video formats and quizzes as well as good structuring and feasibility were considered particularly helpful. Both groups criticised the quality of the videos as well as linguistic aspects such as the length of the texts and modules or language difficulties. As for the content of the intervention version, the experience reports from the example characters (refugees) in particular were described as motivating and interesting and the exercise content as helpful. Differences in the perceived appropriateness between the two subgroups were found with regard to the identification with the example characters: Whereas the participating refugees from other countries of origin were able to recognise and name similarities with the example characters, the participants from Ukraine did not identify with the example characters and described them as untrustworthy or boring (*I don't believe them that the exercises help.* [01_ukr_a1na1_I, pos. 102, translated]). In addition, the participants from Ukraine criticised the strong focus on the topic of flight, too negative content, and too little concrete advice. Suggestions for changes to the adapted version of the intervention included ideas for increasing identification, e.g., through the opportunity to create a personalised profile with one's own needs and issues (*Maybe bubbles and then it's like: hit which bubble you feel speaks to you.* [05_ukr_a3_I, pos. 336] // *Create your own profile and then really see: voilà, that's me.* [10_oth_a1_(T)I, pos. 147, translated]). According to the participants (especially from Ukraine), this could also be achieved through a greater variety or abstractness (e.g. by using graphics instead of real videos) of the example characters.

The non-adapted version of the intervention was also rated positively in both groups. With regard to the conception of the intervention, its simple design and the clear, motivating, and comprehensible structure was mentioned. Both groups criticised the difficult language and an oversupply of text-based information. As for the content of the intervention version, the experience reports of the example characters (Germans) and the exercises and questions were described as helpful, as was the combination of theoretical and practical aspects (*So the first [non-adapted] version was technical for me. Going to see a therapist and answering questions I could fully understand and that was professional I would say.* [01_ukr_a1na1_I, pos. 6, translated]). However, this version of the intervention was considered too scientific or insufficient for more serious problems by the participants from Ukraine (*I don't see here any problems, serious problems. Just, time to bed, stop having alcohol, stop working after 9. But people who are under stress, they need more serious program.* [03_ukr_na3_I, pos. 123]), whereas the participants from other countries of origin mainly mentioned identification difficulties (*Except for alcohol and so on, because I'm a Muslim and I don't drink alcohol. Yes, and the norm in the Arab-Islamic world is completely different. It's practically a sin, it's an absurdity, alcohol is for losers or sinners or I don't know and not for normal people.* [09_oth_na3a4_I, pos. 57, translated]). Some statements of the Ukrainian participants did not include themselves when pointing out possible limitations of the cultural appropriateness for refugees (*But not all people can read so much text at once and the language is also a bit too scientific, like from a psychological book // For me it was okay.* [02_ukr_na2_TI_a3_I, pos. 39, translated]). Suggestions for changes to the non-adapted version of the intervention included a more solution-oriented content and the presentation of more appropriate problems or situations (*I would yes, more different [example characters], for example in terms of age.* [07_oth_na1_Ia, pos. 111, translated]).

Factors influencing the perceived cultural appropriateness

The developed category system furthermore resulted in two categories informing about factors that influenced the perceived cultural appropriateness and needs of the participating refugees regarding the digital sleep intervention (1) *identity* and 2) *health care*). As a main influencing factor, identification was extracted. In the case of participant 05, who fled to Germany from Ukraine as a Nigerian, the dilemma of *same vs. different identity* is highlighted, combined with the question of how far the *identity of being a refugee* is compatible with the *Ukrainian identity*, and whether refugees from Ukraine can identify with refugees from other countries of origin: *You have a world with Ukrainians inside who don't just view fleeing the same, you know, it's the same war, but at the same time, it's not the same ((laughs))*. [05_ukr_a3_I, pos. 252].

The dilemma of *same vs. different identity* became evident in various statements regarding a possible identification of the participating refugees from Ukraine with the example characters in the adapted version of the intervention: *When I was listening to these people, I didn't, I don't know their situation*. [03_ukr_a3_(T)I, pos. 74] // *I could relate. I understand his problem and I think that I have the same problem*. [04_ukr_a2_T, pos. 127] // *Oh, [for refugees] from Ukraine. No*. [05_ukr_a3_I, pos. 240]. Various conflicting issues were found in their statements about the example characters (see Table 3).

Table 3. Statements of the participants from Ukraine that can illustrate a contrasting view on the example characters of the adapted version of the digital sleep intervention.

<i>To be honest, it is better for refugees</i> . [01_ukr_a1na1_I, pos. 6, translated]	↔	<i>Not for me. ((laughs)) For me, I don't know, I understand that it's a completely different culture</i> . [01_ukr_a1_T, pos. 432, translated]
<i>Of course, I don't have time to have this diary, because it's for people who are under stress and under problems (...) who have serious problems and they want to recover. They will do that</i> . [03_ukr_a3_(T)I, pos. 116]	↔	<i>Hm no, for me, stress is the problem number one. (...) Too much stress, for sure. It can have a negative impact on the sleeping quality. Yeah you can't sleep because you think how to solve this problem</i> . [03_ukr_na3_I, pos. 18 // 03_ukr_na3_T, pos. 189]
<i>You know, it [experience reports from refugees]'s something you can relate to, you know</i> . [05_ukr_a3_I, pos. 234]	↔	<i>Even though I did not flee to Europe, like through the Mediterranean or the Sahara, fleeing the war in Ukraine, I don't really think it speaks to me</i> . [05_ukr_a3_I, pos. 198]
<i>And besides: Being a refugee is difficult, it is always difficult</i> . [01_ukr_a1_T, pos. 170, translated]	↔	<i>No, for me, no, for me, everything is easy to talk about. I don't have such or deep problems</i> . [01_ukr_a1na1_I, pos. 165, translated]

In contrast, the participating refugees from other countries of origin seemed to identify strongly with the example characters in the adapted version of the intervention and did not mention any negative criticism of them (see Figure 2).

- Insert Figure 2 about here -

Linked to the lack of identification with the example characters from the adapted version of the intervention, a separation of the participating Ukrainian refugees from other refugees became apparent, revealing an underlying identity conflict (*identity of being a refugee vs. Ukrainian identity // same vs. different*): *They don't really identify as refugees, so in a way that [experience reports from the adapted version of the intervention] would even be a disconnect for them*. [05_ukr_a3_I, pos. 246] // *Just I lived in prosperity (...). I have everything. And I fled from Ukraine the second day of war and didn't see all those bombings,*

devastations, and so on and so forth. [03_ukr_a3_(T)I, pos. 11]. Along with this, the Ukrainian participants emphasised that they did not want to be confronted with the topic of flight (*If I were a refugee, I wouldn't want to focus on it. (...) You have to forget that you are a refugee.* [01_ukr_a1na1_I, pos. 243, translated]).

Nevertheless, factors related to the refugee background that influenced the perceived appropriateness of the interventions were revealed among both groups of participating refugees. Some of these factors were related to the own flight experiences (*Especially when they came from Ukrainian zones after bombing, after devastation, ruin, these bad things. They ask to get psychological treatment or to see a psychiatrist because they realise they need it.* [03_ukr_na3_I, pos. 72] // *That is another traumatic experience. Knowing that, crossing the sea, some people die, some people survive.* [08_oth_a3(na2)_I, pos. 153]). The difficulties due to the flight experiences were suggested to be included in the intervention. Yet, it was also emphasised that refugees should not only and automatically be linked with a neediness for psychotherapy (*You don't have to be a migrant, a refugee, I don't know, to need psychotherapy.* [10_oth_a1_(T)I, pos. 129, translated] // *You are treated in the same way as others, for example, you are not weird (...), but simply have an offer from us.* [09_oth_na3a4_I, pos. 276, translated]). Thereby, statements about a same vs. different identity were repeatedly raised:

There are universal factors of flight and war. [09_oth_na3a4_I, pos. 306, translated] // *It is never the same experience.* [05_ukr_a3_I, pos. 300]

The people that came from the other places also, they face even more difficulties than the people that came from Ukraine. [08_oth_na2a3_TI, pos. 353] // *First-degree refugees, second-degree refugees (...) as if they were now downgraded, i.e. with the refugees who are now less privileged.* [09_oth_na3a4_I, pos. 342, translated]

They have a different pronunciation, different skin colour, different way of speaking and different challenges than we do. [09_oth_na3a4_I, pos. 336, translated] // *They are also refugees and they have had all these problems.* [01_ukr_a1_T, pos. 432, translated]

Other factors related to the flight background that influenced the perceived appropriateness of the intervention versions were associated with the fact of coming from non-German countries of origin, linked to cultural or linguistic differences (*Because I'm Muslim and I don't drink alcohol.* [09_oth_na3a4_I, pos. 57, translated] // *Nope, so the psychologists work according to models and views and worldviews that don't match mine.* [09_oth_na3a4_I, pos. 243, translated]). Also, a better linguistic understanding (native language, linguistic facilitation such as subtitles or audios etc.) and the consideration of different reading comprehension levels seemed to increase the perceived cultural appropriateness (*And not every refugee also can read. But having access to audible information can be helpful.* [08_oth_a3(na2)_I, pos. 137]). As such, the German language was perceived as stressful by one participant (*If I speak German, I'm tense. Yes, because it has to do with work, with problems, with documents and so on.* [01_ukr_a1_T, pos. 359, translated]). Whereas the participants from other countries of origin named both cultural and linguistic differences, the Ukrainian participants solely named linguistic differences. The participants emphasised the need of including these differences and possible differences in the refugee contexts in the intervention content.

Beside the refugee identity, the factor *healthcare* was identified to be linked to the perceived cultural appropriateness of the digital sleep intervention. Differences in the needs and the use of mental healthcare became evident, revealing the importance of familiarity on the one hand and professionalism on the other hand (*I would opt for a European doctor.* [01_ukr_a1na1_I, pos. 237, translated]) // *That [non-adapted version] was professional I would say.* [01_ukr_a1na1_I, pos. 6, translated]) // *If you have problems, you'd rather go to mother, yes, (...) something like relatives, so your nation.* [01_ukr_a1_T, pos. 491, translated]). Although,

psychotherapy was partly described as *trendy*. [02_ukr_na2_I, pos. 108, translated]), stigmatisation of mental healthcare became apparent (*Where I come from, it's very taboo and really inaccessible*. [10_oth_a1_(T)I, pos. 129, translated]), also on a subconscious level (e.g., observation from participant 11 (oth) when filling out the socio-demographic questionnaire: *Psychotherapy? Ah no no no!* [translated]).

Younger age was identified as another factor positively influencing the perceived cultural appropriateness of the digital sleep intervention unrelated to the refugee context (*Because I'm ((laughs slightly)) modern generation and I live with my phone and I know many apps and I use them every, every day*. [04_ukr_a2_I, pos. 45] // *I think I'm open-minded*. [04_ukr_a2_I, pos. 51]).

Discussion

Principal findings

This study for the first time compared the cultural appropriateness perceived by refugees from Ukraine and other countries of origin regarding a digital intervention, in specific the original (developed for Germans) and the culturally adapted (adapted for refugees coming from African and Middle East countries) version of a digital sleep intervention. Overall, the participating refugees showed a positive attitude towards the intervention, yet the perceived cultural appropriateness regarding the two versions seemed to differ between the participants from Ukraine versus from other countries of origin: The identification with the intervention content regarding the refugee context as well as the context of their countries of origin seemed to play a crucial role (see Figure 3). Identification with the refugee context refers to the extent to which participants see their own flight as a part of themselves and could relate to these issues in the intervention. Identification with the country of origin refers to the extent to which the participants identify with the behaviours, values, and norms of their country of origin and could relate to the behaviours, values, and norms illustrated in the intervention. Thereby, identity conflicts among the Ukrainian participants regarding the refugee context were identified as factors reducing the perceived cultural appropriateness of both intervention versions.

- Insert Figure 3 about here -

Both versions of the digital sleep intervention received more positive than negative feedback, and feedback on less appropriate aspects mainly concerned design and language aspects (e.g., including too much text, hard-to-understand language), which is rather a general feedback on digital interventions than a refugee-specific point of view [39–41]. Regarding the participating refugees from countries other than Ukraine, the findings mainly corresponded to previous findings: Whereas a lack of identification with the non-adapted version was shown [21], the adapted version seemed to be perceived as appropriate in terms of its content [19], and no negative feedback on the intervention content was given. Regarding the participating refugees from Ukraine, negative feedback on the intervention content was mainly given concerning the adapted version of the intervention and comprised a perceived over-focus on the topic of flight, in particular regarding the example characters. Concerning the non-adapted version, fewer negative feedback indicated a perceived inappropriateness of the illustrated life situations and problems of the example characters, which related in particular to a high workload. Thus, both versions of the intervention appeared to be only partially appropriate for the participants from Ukraine.

The lower perceived cultural appropriateness among the Ukrainian participants regarding the adapted version of the intervention was suggested to be linked to their lower identification with the intervention: Differences between the participants from Ukraine versus from other

countries of origin became apparent with regard to their flight experiences and aspects related to the fact of not being German. This resulted in differences in the identification with, for example, the example characters in the interventions. The revealed differences correspond to differences between refugees from Ukraine and refugees from other countries of origin suggested in literature: Although Ukrainian refugees and refugees from other countries of origin share the experience of having had to flee, they differ in various other aspects, such as the welcome culture in Germany as well as socio-demographics, which was also revealed in the current study [24,42].

Along with this, higher privileges of Ukrainian refugees and differences in refugee experience or arrival in Germany were discussed among the participants. Not only are there differences between refugees from Ukraine and from other countries, but there are also major differences in the experiences of war and flight among refugees from Ukraine, particularly at the time of the study conduction only one year after the beginning of the war [24]: Some of the participating refugees from Ukraine had left the country right at the beginning of the war without having experienced it themselves, and also without having experienced the loss of family members or friends. Furthermore, the Ukrainian participants might still have hoped to return to their home country soon [24]. Different durations of their stay in Germany therefore seemed to be linked to different flight experiences and, herewith, with a different identification with the refugee context and associated problems described in the adapted intervention version. Depending on this, the adapted version of the intervention could therefore show a certain degree of perceived appropriateness for some of the participating refugees from Ukraine. A dilemma became apparent: Whereas the Ukrainian participants seemed to identify with the European culture of the example characters in the non-adapted version, they did not identify with their concerns especially regarding a high work load; with regard to the example characters in the adapted version, they could possibly identify in parts with their refugee background, but not with their non-European cultural background. This was accompanied by identity conflicts regarding the refugee context in the statements of the Ukrainian participants, which were not found among the participants from other countries of origin. For example, one Ukrainian participant described the adapted version of the intervention as appropriate for refugees, but not for herself. The importance of identity issues and conflicts in the refugee context has been highlighted previously [43,44].

The found differences in the identity conflicts and the identification with the versions of the intervention emphasise the relevance of specifying a target group and their specific needs in the context of cultural adaptations [45,46]. The lack of including the living situation and the needs of Ukrainian refugees during the cultural adaptation of the present intervention [21] may have led to the identification difficulties and, herewith, in the reduced perceived cultural appropriateness. In order to enhance the appropriateness of the intervention for refugees from Ukraine, the intervention could be further adapted, for example by providing the possibility for a personalisation of the content or of the example characters in order to improve the identification. This has already been applied, for example, as part of the Step-by-Step program in Lebanon [47,48].

Factors other than identity that were associated with the perceived cultural appropriateness of the digital sleep intervention were aspects related to healthcare, such as the stigmatisation of mental health and a preference for professionalism versus familiarity with mental health professionals, as well as a younger age. These factors appeared to differ less between the participants from Ukraine versus from other countries and build on barriers to access healthcare revealed in literature [6–8]. In this context, the non-adapted version of the intervention was rated as more professional or scientific by the Ukrainian participants.

Limitations

Several study limitations are to be named. First, we could only include study participants with

sufficient knowledge of German or English. Due to the open recruitment, this resulted in a rather educated and young sample, which possibly influenced the perceived cultural appropriateness of interventions [49]. Second, the majority of participants were recruited via private contacts. This may have biased the results in terms of social desirability, despite enquiring about perceived negative aspects of the interventions. Third, the duration and mode of conduct (online versus presence) of the interviews with the study participants were not parallelised for the two subgroups. This might have led to an over-representation of the statements made by the Ukrainians, combined with the fact that the category system was initially developed based on the transcripts of Ukrainian participants. Fourth, the frequency analyses are not directly interpretable, as they were not related to the frequency of implementation of the respective intervention.

Conclusions

With the rising number of refugees worldwide, the need for low-threshold and culturally appropriate mental health services is increasing. In this qualitative study, the relevance of the identification of the participating refugees with the content of the digital intervention *Sleep-e* for their perceived cultural appropriateness was emphasised. There were substantial differences between the participating refugees from Ukraine and those from other countries of origin: The participants from Ukraine appeared to be in an identity conflict regarding their identification with the refugee context, which seemed to reduce the perceived appropriateness both of the version of the intervention adapted for refugees from African and Middle East countries and of the non-adapted version for Germans. Refugees from other countries of origin, on the other hand, could identify well with the adapted version of the intervention and perceived it as appropriate. The perceived cultural appropriateness for refugees from Ukraine should be improved by diversifying the problems addressed to consider current developments related to the war in Ukraine and other changes in world affairs. As such, the cultural sensitivity of treatments should be considered as a dynamic condition related to time and context [50].

Acknowledgements

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Conflicts of Interest

DL, LBS, and KS were involved in the development of the *Sleep-e* intervention or its predecessor versions.

Multimedia Appendix 1

Interview guideline [PDF file (Adobe Acrobat), 89 kB]

Multimedia Appendix 2

Category system [PDF file (Adobe Acrobat), 128 kB]

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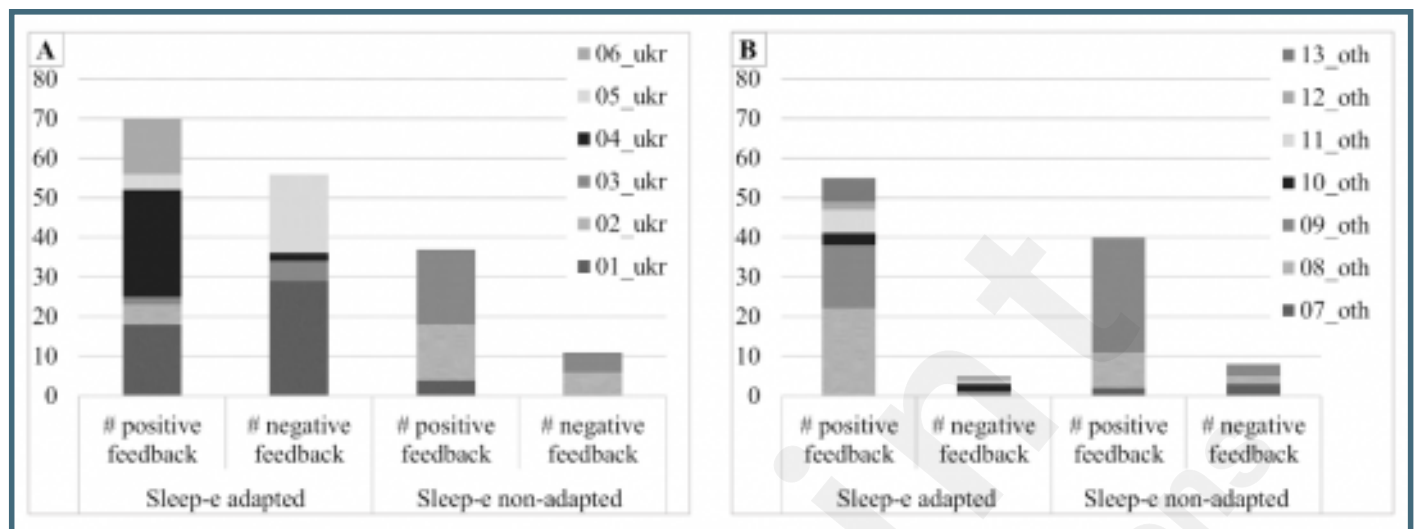
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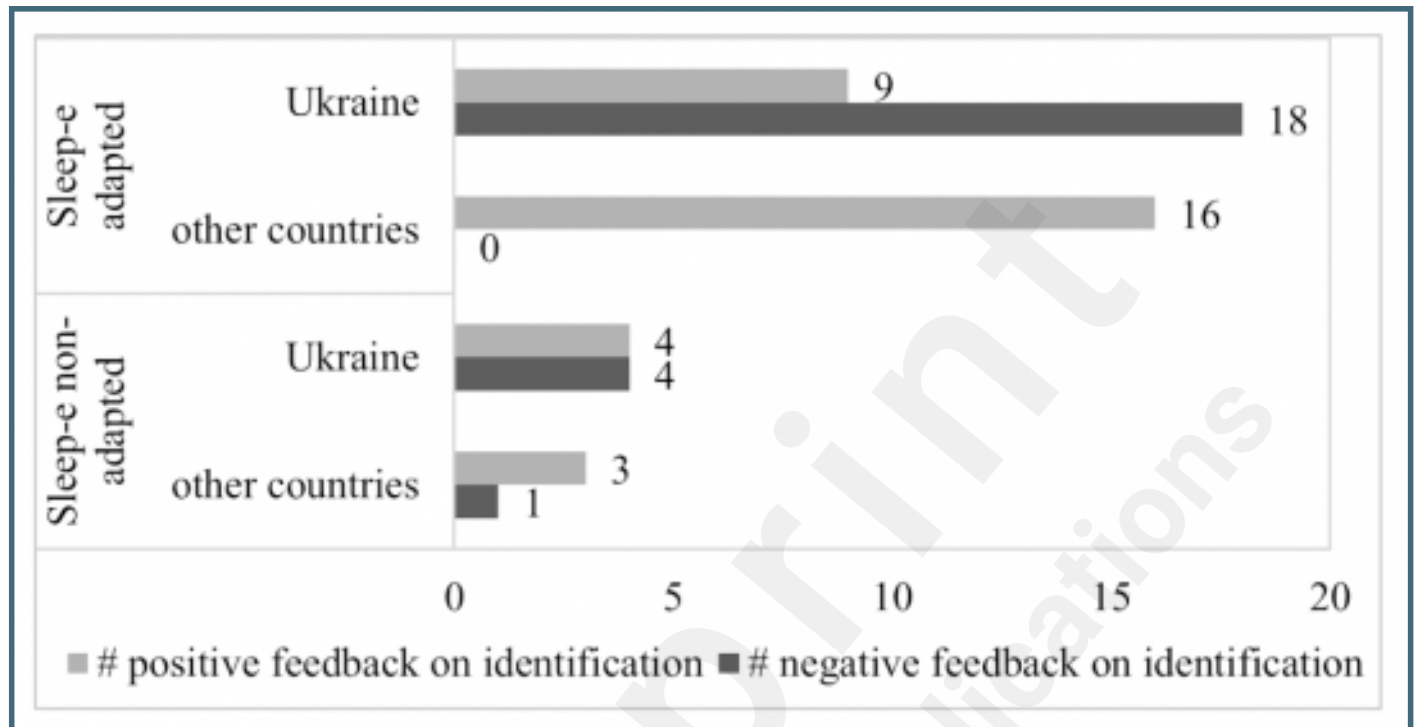
Supplementary Files

Figures

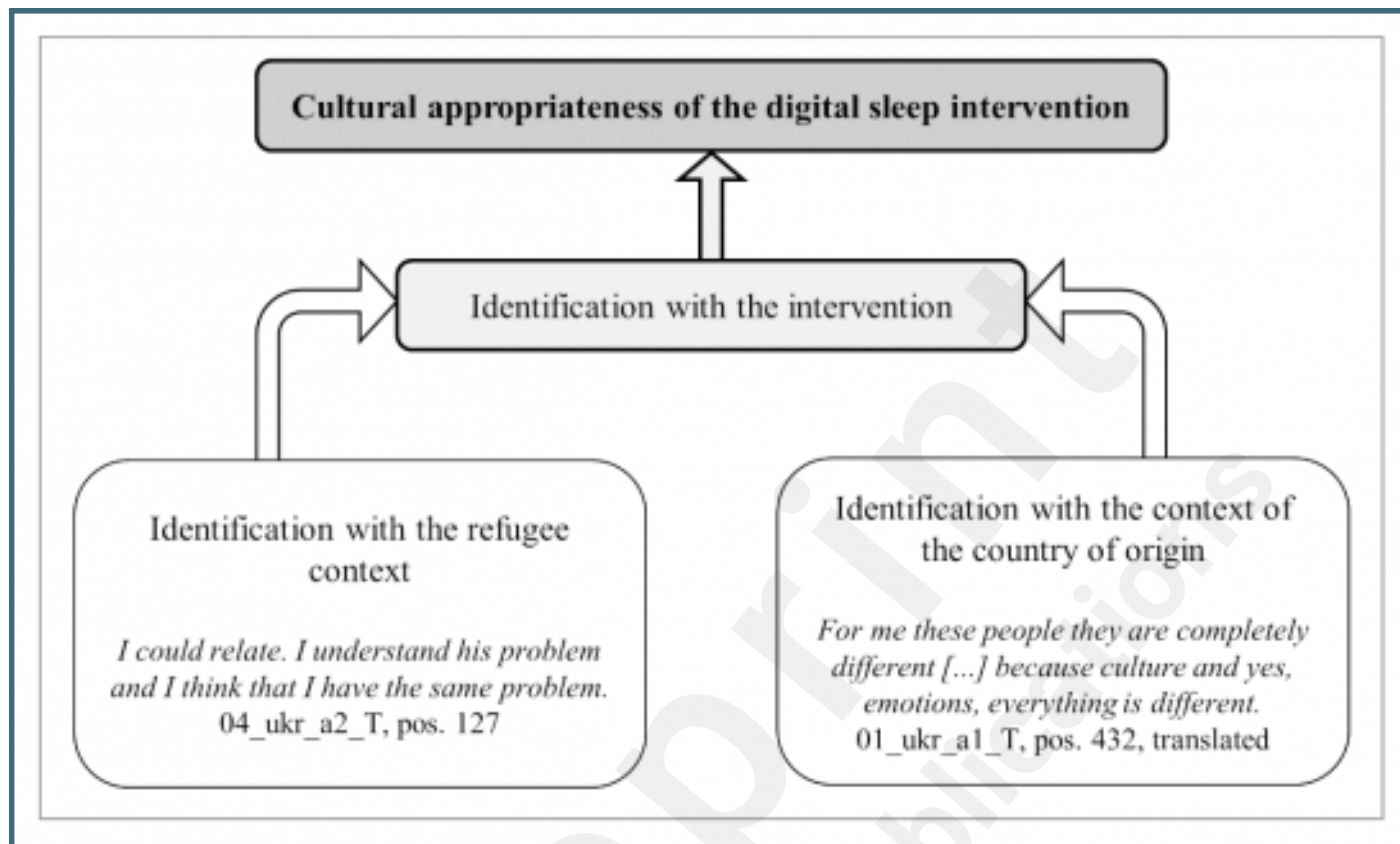
Frequency analyses of positive and negative feedback given by the participating refugees from Ukraine (A) and from other countries of origin (B). Numbers of positive and negative feedback are illustrated separately for the adapted version and the non-adapted version of the digital intervention Sleep-e.



Frequency analyses of positive and negative feedback concerning the identification with the example characters given by the participating refugees from Ukraine and from other countries of origin. Numbers of positive and negative feedback are illustrated separately for the characters of the adapted version and of the non-adapted version of the digital intervention Sleep-e.



The role of identification in the perceived cultural appropriateness of the digital intervention Sleep-e among the participating refugees from Ukraine and from other countries of origin.



Multimedia Appendixes

Interview guideline.

URL: <http://asset.jmir.pub/assets/4e6f784a2bf198a7011e3d08989cab23.pdf>

Category system.

URL: <http://asset.jmir.pub/assets/d51d39543efa557f8d86177f21b13064.pdf>

