

Welcome, how are you doing? – towards a systematic mental health screening and crisis management for newly arriving refugees

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CLINICAL RESEARCH ARTICLE



Welcome, how are you doing? – towards a systematic mental health screening and crisis management for newly arriving refugees

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ABSTRACT

Background: Compared to the general German population, refugees in Germany are a high-risk group for trauma spectrum disorders. Currently, many barriers exist for the implementation of a screen-and-treat approach for mental disorders as part of the routine health care provision during the early stage of the immigration process.

Objective: The aim of the present study was to develop and test a systematic screening approach to identify individual refugees in need of mental health care during the initial immigration phase.

Method: 167 newly arrived refugees underwent a screening interview with the Refugee Health Screener (RHS) carried out by Intercultural Therapy Assistants (ITAs). The ITAs were supervised by psychologists at a reception centre in Bielefeld, Germany. A subsample of 48 persons participated in clinical validation interviews.

Results: Findings demonstrated the need for and feasibility of a systematic screening during the initial immigration phase. However, established cut-off values of the RHS had to be adapted and the screening procedure had to be adjusted due to the needs of a significant number of refugees in severe psychological crises.

Conclusion: A systematic screening that is applied shortly after arrival facilitates the early identification of refugees at risk of developing mental disorders and may be helpful to prevent chronic symptom development and an aggravation of psychological crises.

Bienvenido, ¿Cómo estás? – Hacia una evaluación sistemática de salud mental y gestión de crisis para refugiados recién llegados

Antecedentes: En comparación con la población general alemana, los refugiados en Alemania representan un grupo de alto riesgo para los trastornos del espectro de trauma. Actualmente, existen numerosas barreras para la implementación de un enfoque de detección y tratamiento de los trastornos mentales como parte rutinaria de la prestación de atención en salud durante la etapa inicial del proceso de inmigración.

Objetivos: El objetivo del presente estudio fue desarrollar y evaluar un enfoque de detección sistemática para identificar refugiados de manera individual que requieran de atención en salud mental durante la fase inicial de inmigración.

Métodos: 167 refugiados recién llegados se sometieron a una entrevista de cribado con el instrumento "Evaluador de salud de refugiados" (RHS, por sus siglas en inglés) realizado por Asistentes de Terapia Intercultural (ITAs, por sus siglas en inglés). Los ITAs fueron supervisados por psicólogos en un centro de acogida en Bielefeld, Alemania. Una submuestra de 48 personas participaron en entrevistas para la validación clínica del instrumento.

Resultados: Los resultados demostraron la necesidad y viabilidad de un enfoque de evaluación sistemática durante la fase inicial de inmigración. Sin embargo, los puntos de corte establecidos del RHS tuvieron que ser adaptados y el proceso de cribado tuvo que ajustarse debido a las necesidades de un número significativo de refugiados con crisis psicológicas severas.

Conclusión: Una evaluación sistemática que se aplica poco después de la llegada de los refugiados facilita una identificación temprana de los refugiados en riesgo de desarrollar trastornos mentales y podría ser útil en la prevención del desarrollo de síntomas crónicos y el empeoramiento de las crisis psicológicas.

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关键词

难民; 寻求庇护者; 心理健康; 筛查; 文化调解员; 欧洲; 德国

HIGHLIGHTS

- A systematic complementary screening procedure during the initial immigration phase was found to be useful for the identification of refugees in need of mental health care.
- The procedure could be implemented both safely and efficiently in conjunction with the initial medical check-up for recently arrived refugees.
- Responding to the needs of the refugees immediately following their arrival in Germany, we adjusted the cut-off of the screening instrument and suggest to explicitly include a detection procedure for severe psychological crises.

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欢迎，你还好吗？——为新抵达的难民进行系统性心理健康筛查和危机管理

背景：与一般德国人群相比，德国难民是创伤谱系障碍的高危人群。目前，在移民过程的早期阶段，将精神障碍筛查和治疗方法作为常规医疗保健服务一部分的实施存在许多障碍。

目的：本研究旨在开发和检验一种系统性筛查方法，以识别在初始移民阶段需要心理健康护理的个体难民。

方法：167名新抵达的难民接受了由跨文化治疗助理 (ITA) 执行的难民健康筛查工具 (RHS) 的筛查访谈。ITA 由德国比勒费尔德接待中心的心理学家监督。48 人的子样本参加了临床验证访谈。

结果：调查结果表明在初始移民阶段进行系统筛查的必要性和可行性。然而，由于大量处于严重心理危机中的难民的需求，必须调整 RHS 的既定临界值并且必须调整筛选流程。

结论：抵达后不久进行的系统性筛查有助于尽早识别有精神障碍风险的难民，并可能有助于预防慢性症状的发展和心理危机的加剧。

1. Introduction

Refugees, those who have been forcibly displaced from their countries of origin, represent a vulnerable group within countries of reception with regard to trauma spectrum disorders, due to the high number of stressors and traumatic events they commonly experience before, during, and after the flight. Approximately every second newly arrived refugee in Germany has at least one psychological disorder (Nesterko et al., 2019), with prevalence rates reaching almost 30% for post-traumatic stress disorder (PTSD) and the same rate for depression (Hoell et al., 2021). In the face of the high number of refugees in need, providing mental health care for this group remains a challenge even in countries with a highly developed mental health care system such as Germany (Bajbouj, 2016; Nowak et al., 2022). This challenge currently manifests itself in a gap between the legal regulations obliging its representatives to implement measures for the early identification of illness and the provision of adequate health care (e.g. 2013//33/EU), on one side, and the actual practices lacking of a systematic identification procedure as well as of available treatment options, on the other side (Bozorgmehr et al., 2016; Bundesweite Arbeitsgemeinschaft der psychosozialen Zentren für Flüchtlinge und Folteropfer [BAfF], 2020; Van den Heuvel & Stammnitz, 2018).

One possible approach to meet the demands of a high number of individuals at risk for trauma-related disorders is the screen-and-treat approach (Brewin et al., 2008; Hogan et al., 2021). Screen-and-treat approaches have originally been developed as cost-effective and efficient public health responses to incidents such as terror attacks, mass trauma, and pandemics. They combine the elements of outreach, screening with validated instruments, and evidence-based interventions. In contrast to other disaster responses that build on unspecific counselling and public education, screen-and-treat involves the identification of the subgroup of individuals with need for intervention as the first step. In the face of

an overburdened mental health care system, some researchers and practitioners have suggested including a systematic screening as a strategic health care measure for newly arrived refugees (Kaltenbach et al., 2017; Nationale Akademie der Wissenschaften, 2018; Stingl et al., 2019). The early identification and treatment of refugees in need could prevent the development of chronic symptoms as well as costly emergency treatments (Bozorgmehr & Razum, 2015; Lamkaddem et al., 2014).

To address several challenges that have been identified in previous early screening measures, such as a lack of cultural competence and limited deployable resources on a long-term basis (Al-Obaidi et al., 2015; Wahedi et al., 2020), we developed the *Bielefeld Screening Approach*. The *Bielefeld Screening Approach* is a pragmatic complementary mental health screening for newly arriving refugees at the reception centre. This approach is organized in the context of the mandatory initial medical examination that is carried out by a general practitioner (GP) shortly after the arrival of a refugee at the reception centre. Currently, the identification of mental disorders in this setting is limited due to constraints in time and since the health check-ups rarely involve extensive language translation or the application of validated instruments (BAfF, 2020; Bozorgmehr et al., 2016; Van den Heuvel & Stammnitz, 2018). To overcome these restraints, we added the Refugee Health Screener (RHS; Hollifield et al., 2013; Magwood et al., 2022) as a voluntary mental health screening carried out by trained lay interviewers and supervised by mental health professionals that takes place after the medical examination. The aim of this study was to determine the feasibility of the screening interview and its diagnostic accuracy for the detection of individuals in need of psychotherapeutic support. We also sought to determine the diagnostic utility of the RHS in a subset of respondents to establish initial cut-off values for the detection of individuals in need.

2. Method

2.1. Procedure

This study was conducted at a refugee reception centre in the town of Bielefeld in North-Rhine Westphalia, Germany. The study was part of the COCARE-project funded by the Asylum, Migration, and Integration Fund of the European Union. Ethical approval was obtained from the Ethical Committee of Bielefeld University as well as permission to carry out the study from the State Ministry for Children, Youth, Family, Equality, Flight and Integration. Participants provided written informed consent prior to the screening interview in the centre.

2.1.1. Screening

The *Bielefeld Screening Approach* that was tested in this study has been constructed as a brief and economic mental health screening for newly arriving refugees. This approach is organized in the context of the mandatory initial medical examination that is carried out by a general practitioner (GP) shortly after the arrival of a refugee at the reception centre. The aim was to provide a well-accepted procedure for the reliable detection of cases in need of mental health care while providing support for individuals in severe psychological crises. Eligible participants were informed about the screening by the study team ahead of the initial medical examination at the reception centre and invited to participate in the study. The screening approach involved staff at three levels including trained lay interviewers, so-called Intercultural Therapy Assistants (ITA; for a detailed description, see the Supplementary Material 1). The procedure was coordinated by mental health professionals (psychologists or psychotherapists) who organized and supervised the team, took responsibility for the classification, and initiated referrals for treatments and crisis interventions. In addition, GPs who provided the initial medical health check-up were involved in the screening, as well. In the event they detected signs of a severe psychological crisis during the medical examination, they referred the participant directly to the mental health care professional. Otherwise, the GP referred the resident to an ITA who was fluent in a shared language to apply the screening instruments. During the one-on-one screening interview conducted by the ITA, the supervising psychologist was always in reachable distance. The ITAs were instructed to accompany the participant directly to the specialist in case signs of psychological crises were noted (e.g. suicidal ideation, confused speech, perceived danger for a person's life). Due to an unexpectedly high number of severe psychological crisis cases identified during the course of this study, we suggest the additional aim to identify individuals in

need for crisis intervention by making this an explicit component of the screening procedure (see discussion section below).

Based on the information from the screening provided by the ITA, and, if needed, additional information provided by the respondent, the mental health professional determined the classification of the respondent in one of three categories and initiated referrals or interventions, if necessary (see Figure 1). In cases of indications of a severe psychological crisis ('red flag'), the psychologist carried out a detailed psychological examination of the reported symptoms in cooperation with the ITA. If the psychologist confirmed a severe psychological crisis, he or she initiated an emergency intervention in cooperation with the GP, such as a hospitalization to ensure the participant's safety. When the screening indicated a likely PTSD or depression diagnosis without signs of severe psychological crisis ('yellow flag'), information was provided by means of standardized psychoeducation including action recommendations as well as information on available health care options. The fundamental idea behind this psychoeducation was that depending on the expected duration of stay in the community and the availability of mental health treatment options, the respondent should be referred to a local therapist or treatment centre for diagnostic clarification and treatment immediately. However, in many conditions immediate referral might not be possible so the response may have to include a period of *watchful waiting* (e.g. Nationale Akademie der Wissenschaften, 2018, p. 23). Individuals with symptoms below the threshold of the screening instrument and no indication of severe psychological crisis ('green flag') received individual feedback about the results of their screening through the ITA, including brief information about signs of trauma and depression as well as means to access mental health care in case of worsening of symptoms.

2.1.2. Validation

Shortly after the screening (average 4.96 days; SD = 7.07), a subgroup of participants was invited to participate in a validation interview. This diagnostic assessment was conducted as an interview with the help of a translator. The interviewers were clinical psychologists with a bachelor, master, or doctorate degree who had experience and were extensively trained in the clinical assessment of refugees. They were blind to the results of the screening interview.

2.2. Participants

Refugees who were assigned to the initial health check-up in a local reception centre during the time period between mid of January and mid of March 2020 were invited to participate in the study. To

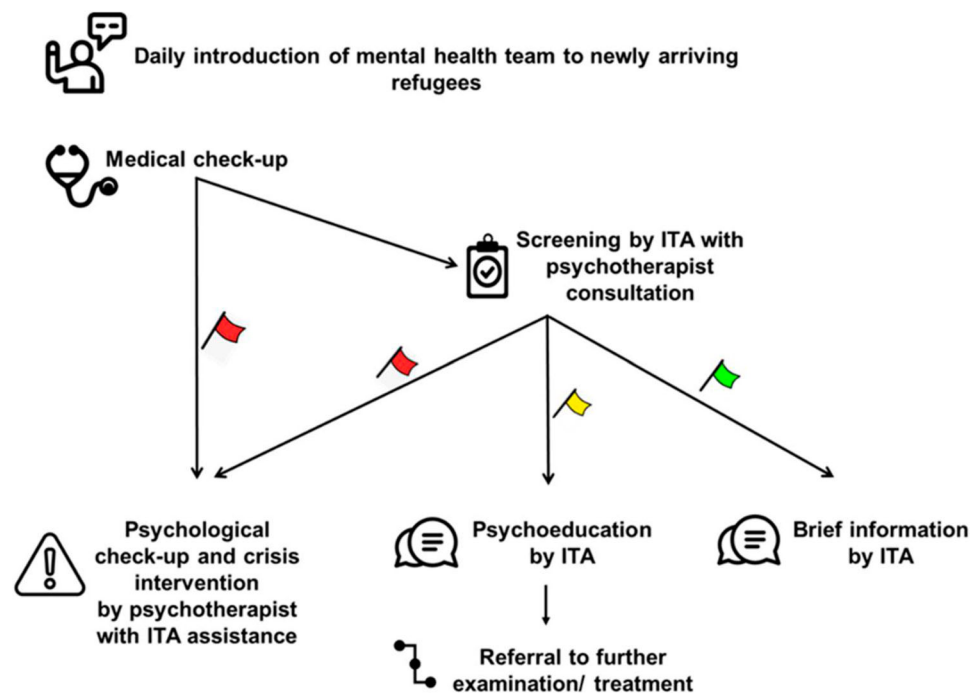


Figure 1. The Bielefeld Screening Approach for Refugees. Red flags indicate signs of acute crisis; yellow flags indicate a probable diagnosis of PTSD or depression according to the RHS without signs of crisis; green flags indicate no signs of crisis and RHS score below cut-off. Icons by www.flaticon.com.

qualify for inclusion in the study, participants had to be at least 18 years of age as well as have written and oral language competence in either Arabic, English, Farsi, French, German, Kurdish Kurmanji, Russian, or Turkish. In total, $N = 167$ newly arrived refugees were screened. See Table 1 for the sociodemographic characteristics. Due to limited resources and logistical constraints, the screening participants constituted a

convenience sample. Of the 575 adults who had arrived during the course of the study period, 29% were screened. The reasons for this included, amongst others, that the study team was only present on three out of seven days a week as well as that potential participants did not get in contact with the study team after their medical check-up and retreated to their rooms without being offered to participate in the screening. The screening participants were representative of their cohort in terms of age and gender but not in terms of their countries of origin. Of the 167 screening participants, a subsample of $N = 48$ participated in the subsequent diagnostic validation interviews. The selection process of participants for the diagnostic validation interviews was based on convenience sampling. Towards the imminent introduction of covid-19 protection measures, priority was given to any participants with a negative screening result in order to have a sufficient number of negatively screened participants in the validation sample. This subsample did not markedly differ from the screening sample (see Table 1).

Table 1. Sociodemographic characteristics and group differences.

Characteristic	Screening sample ($N = 167$)	Validation interview ($N = 48$)	p
Gender, No. (%)			.45
Female, No. (%)	51 (30.5)	12 (25)	
Male, No. (%)	116 (69.5)	36 (75)	
Age, M (SD), y	32.42 (11.09)	33.17 (10.26)	.67
School years, M (SD), y	9.40 (4.43) ^a	9.63 (3.97)	.63
Country of origin, No. (%)			.98
Syria, No. (%)	44 (26.3)	15 (31.3)	
Turkey, No. (%)	23 (13.8)	9 (18.8)	
Iraq, No. (%)	16 (9.6)	4 (8.3)	
Iran, No. (%)	15 (9.0)	3 (6.3)	
Afghanistan, No. (%)	13 (7.8)	4 (8.3)	
Nigeria, No. (%)	11 (6.6)	3 (6.3)	
Other, No. (%)	45 (27)	10 (20.8)	
Duration of stay in Germany, Median (<i>interquartile range</i>), d	10 (24)	9.50 (18)	.42
RHS-13 score, M (SD)	22.63 (13.18) ^a	23.35 (14.10)	.74
RHS-14 score, M (SD)	23.95 (13.65) ^a	24.46 (14.47)	.82
RHS-15 case (items 1–14 cut-off ≥ 12 or distress thermometer cut-off ≥ 5), No. (%)	137 (82.53) ^a	38 (79.17)	.59
RHS-13 case (cut-off ≥ 11), No. (%)	130 (78.31) ^a	35 (72.92)	.43
RHS-13 case (cut-off ≥ 21), No. (%)	94 (56.63) ^a	27 (56.25)	.96

Notes. y = years, d = days, RHS = Refugee Health Screener,^a $N = 166$.

2.3. Measures

2.3.1. Screening

The RHS-15 (Hollifield et al., 2013) comprises 13 questions about symptoms of somatization, anxiety, depression, and PTSD that can be answered by means of a 5-point Likert scale (0 = 'not at all' to 4 = 'extremely') as well as one further question regarding a person's level of functionality that can also be

answered on a 5-point Likert scale. Additionally, a person's current distress level is measured by means of a so-called distress thermometer ranging from 0 'no distress' to 10 'extreme distress'. A sum score of ≥ 12 on the items 1–14 (RHS-14) or a raw score ≥ 5 on the distress thermometer indicates a level of emotional distress that is likely to be related to a diagnosable mental illness. The RHS-15 and its more efficient short-version, the RHS-13 (recommended cut-off score ≥ 11 on items 1–13; Hollifield et al., 2016), are widely used in research and clinical settings (e.g. Al-Obaidi et al., 2015; Bjärtå et al., 2018; Stingl et al., 2019). Recently, elevated cut-off scores for more specific identification of probable mental illness were recommended (Bjärtå et al., 2018; Kaltenbach et al., 2017). In the present study, the RHS-15 and the RHS-13 showed a good internal consistency (both $\alpha = .89$).

In addition, information on severe psychological crisis cases who showed signs of acute suicidality, psychotic symptoms, life-threatening drug abuse / other severe self-injurious behaviour or reported other dangers to their own or another person's life was documented by the supervising psychologists.

Furthermore, the screening battery included six questions on substance consumption as well as the Primary Care PTSD Screen for Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) which assesses the presence of PTSD, specifically (Prins et al., 2016). These instruments were not included in the analyses presented here.

2.3.2. Validation interview

The Post-traumatic Stress Disorder Checklist for DSM-5 (PCL-5; Weathers et al., 2013) was used to provisionally diagnose PTSD according to the DSM-5 algorithm. The PCL-5 is one of the most utilized PTSD brief diagnostic measures for adults and has been employed across different refugee populations (Magwood et al., 2022). It consists of 20 items rated on a Likert scale ranging from 0 = 'not at all' to 4 = 'extremely'. The DSM-5 algorithm indicates that participants must endorse at least one symptom in each of the B- and C-clusters, and at least two symptoms in each of the D- and E-clusters rated as being at least moderately distressing within the past four weeks. The G-criterion (significantly disturbed functionality) was assessed by means of an additional item rated on a 4-point Likert scale (0 = 'not at all disturbed' to 3 = 'extremely disturbed') with 1 ('somewhat disturbed') indicating a significant level of disturbance. The PCL-5 showed a very good internal consistency ($\alpha = .93$). As with other measures, the PCL-5 was administered as part of a structured interview.

The adapted version of the War and Adversity Exposure Checklist (Ibrahim et al., 2018) was used

to assess 38 different adverse and potentially traumatic life events in the context of war as well as in other relevant contexts (e.g. family, relationships, or during the flight). The events are dichotomously evaluated as present or not present ('yes' or 'no') by the participant.

The short version of the Family Violence Checklist (Catani et al., 2008) was used to measure violent experiences in the family context during childhood. It comprises 8 items assessing neglect as well as emotional, physical, and sexual abuse.

The Clinician-Administered Patient Health Questionnaire-9 (CA-PHQ-9) is a newly developed combination of the PHQ-9 which is used to screen for depressive symptoms (Spitzer et al., 1999) and the Diagnostic Interview for Mental disorders (Margraf et al., 2017). The CA-PHQ-9 was used to assess the clinical relevance of each symptom of the PHQ-9, the presence of the two core symptoms for most of the time during the day, as well as the overall level of disturbance which leads to a provisional diagnosis of a major depressive disorder (MDD) according to the DSM-5 algorithm. The PHQ-9 has been widely used in research with refugees (Magwood et al., 2022). In the present study, the CA-PHQ-9 showed a good internal consistency ($\alpha = .83$).

The suicidality section of the Mini-International Neuropsychiatric Interview (Sheehan et al., 1998) was used to evaluate a person's suicide risk level as non-existent, low, middle, or high. It entails six questions regarding the person's suicidality in the past month and any past suicide attempts.

2.4. Statistical analyses

All analyses were carried out using the Statistical Package for Social Sciences (SPSS; version 28). The RHS sum scores were calculated for all participants who answered at least half the items on the scale. In the validation sample, missing values accounted for less than 10% of the values across all relevant variables. Pearson's correlation coefficient was used for the correlation of the RHS-13 sum score with the PCL-5 sum score as well as with the CA-PHQ-9 sum score. Cohen's κ , sensitivity, and specificity were calculated for the agreement between the different versions of the RHS and the diagnoses of PTSD and MDD according to the DSM-5 algorithm as described above. For determining the optimal cut-off score of the RHS-13 for the study population, receiver operating characteristic (ROC) analyses were performed. In addition, contingency tables were created by hand and included case lists per cell for assessing the concordance of severe psychological crisis cases, cases with a medium or high risk of suicide, as well as cases with a positive screening result.

3. Results

Applying the original cut-off criterion of the RHS-15, 82.53% of 166 participants received a positive screening result. Overall, 11 of 167 participants (6.59%) were identified as experiencing a severe psychological crisis following a 'red flag' indication by the GP or the ITA. The crises included a significant risk of suicide ($n = 7$), acute psychotic symptoms ($n = 3$), and high mental distress including self-injurious behaviour and acute mental destabilization ($n = 1$). Measures were initiated to ensure the safety of the participants in all cases.

In the subsequent validation interviews, 35.42% of 48 respondents obtained a provisional diagnosis of PTSD and 14.58% of MDD. Three (6.25%) persons who participated in the diagnostic validation interview presented with a high suicide risk level and two (4.17%) with a medium suicide risk level. The mean number of experienced traumatic event types across the WAEC and the Family Violence Checklist was 16.23 ($SD = 7.46$).

The test of the concordance of screening and validation results showed that there was a low agreement between the RHS-13 and an even lower agreement between the RHS-15 with the results of the diagnostic validation interviews regarding the diagnoses of PTSD and MDD with a very low specificity when applying the conventional cut-off values (see Table 2). Since the correlations between the RHS-13 sum score and the continuous score of the diagnostic measures were strong ($r = .84$, $p < .001$ for the PCL-5 sum score and $r = .64$, $p < .001$ for the CA-PHQ-9 sum score) we expected to find a better correspondence through an adjustment of the cut-off score.

In light of the high sensitivity and low specificity, the cut-off score was elevated stepwise to reach a more balanced relation (see Table 3). Weighing a

loss of sensitivity over a gain of specificity, a cut-off score of 21 for the RHS-13 was deemed optimal. Applying this elevated cut-off, the prevalence rate of a positive screening result dropped to 56.63% and all parameters indicating agreement with the results of the diagnostic interview improved markedly (see Table 2).

With regard to the ability of the screening measure to detect severe psychological crisis cases, the results showed that all but one severe psychological crisis case ('red flags') had a positive screening result on the RHS-13 according to the adjusted cut-off score. This person with a negative screening result had presented with psychotic symptoms and the interviewer expressed doubts about the validity of his answers to the screening questions. Of the five persons with a medium or high suicide risk level assessed by the diagnostic interviews, only one person was identified as a psychological crisis case during the screening ('red flag'). All but one of these five persons screened positive using the adjusted cut-off. The person who screened negative was not identified as a severe psychological crisis case ('red flag') during the screening either. During the usual initial medical health examination without the mental health screening, approximately two cases with acute suicidality have been identified on average per month, according to the GPs.

Overall, no significant disruption of the health check-ups or the initial immigration proceedings was documented and no safety concerns with regard to the implementation of the screening interviews were raised by any of the parties involved. On the contrary, the presence of the ITAs appeared to facilitate the medical check-up and being aware of mental health conditions of individuals experiencing severe distress was deemed helpful for addressing their needs appropriately at the centre.

Table 2. Sensitivity, specificity and agreement (Cohens Kappa).

		PCL-5 case		CA-PHQ-9 case		PCL-5 and/or CA-PHQ-9 case	
		Negative	Positive	Negative	Positive	Negative	Positive
RHS-15 case (items 1–14 cut-off ≥ 12 or distress thermometer cut-off ≥ 5)	negative	10	0	10	0	10	0
	positive	21	17	31	7	18	20
	Kappa		.25		.09		.32
RHS-14 case (cut-off ≥ 12)	negative	14	0	14	0	14	0
	positive	17	17	27	7	14	20
	Kappa		.37		.13		.46
RHS-13 case (cut-off ≥ 11)	Sens/Spec		1/.45		1/.34		1/.50
	negative	13	0	13	0	13	0
	positive	18	17	28	7	15	20
RHS-13 case (cut-off ≥ 21)	Kappa		.34		.12		.42
	Sens/Spec		1/.42		1/.32		1/.46
	negative	21	0	20	1	20	1
RHS-13 case (cut-off ≥ 21)	positive	10	17	21	6	8	19
	Kappa		.60		.16		.63
	Sens/Spec		1/.68		.86/.49		.95/.71

Notes. RHS = Refugee Health Screener, PCL-5 = Posttraumatic Stress Disorder Checklist-5, CA-PHQ-9 = Clinician-administered Patient Health Questionnaire-9.

4. Discussion

In this study, we applied a systematic screening procedure for newly arriving refugees at a reception centre in mid-west Germany. The main components of the screening were found to be useful, including the context of the initial medical health examination, the deployment of multilingual lay staff as ITAs, the supervision and coordination of the screening procedure by a specialist, and the application of a standard assessment instrument. However, to adjust the procedure to the needs of the refugees in the time immediately following their arrival in Germany, it was necessary to elevate the cut-off of the screening instrument and explicitly include a procedure for detecting severe psychological crises.

The prevalence rates of probable mental illnesses identified in our sample (about 35% for PTSD and 15% for MDD according to the diagnostic interviews) were similar to the rates found in previous studies in Germany (e.g. Nesterko et al., 2019) and confirm the need for an identification procedure for mental illnesses during the initial stage of the immigration process. Using established cut-off values, the rate of positive screening results according to the RHS-15 of 82.5% seemed high but may not be exceptional during the early initial immigration phase. Other studies with newly arriving refugees found similar rates with the RHS, between 65.9% (Stingl et al., 2019) and 77% positive cases in the clearing phase of the asylum process (Bjærtå et al., 2018).

However, it is likely that these rates of positive screening cases overestimate the prevalence of mental disorders. In our validation study, we found that caution is warranted in the uncritical application of cut-off values for refugees immediately after arrival. We needed to increase the cut-off of the RHS-13 considerably to make the screening result reach a reasonable specificity (.71) while retaining a high sensitivity (.95). In particular, our suggested cut-off (≥ 21) is markedly higher than the adjusted cut-off of ≥ 14 as suggested by Kaltenbach et al. (2017) but ranges in the scores suggested for the prediction of moderate (≥ 18) to severe (≥ 25) distress that is likely associated with the presence of a psychiatric illness proposed by Bjærtå et al. (2018). Since the validation methods used by Kaltenbach and colleagues were comparable to this study but the duration of stay of their participants was 6.5 months on average ($SD = 2.99$), it is likely that the discrepancy between the optimal cut-off values determined in these two studies points towards an elevated level of emotional distress during the early initial immigration phase which might be attributable to acute, context-specific, and not necessarily pathological distress stemming from recent stressful experiences during the flight or acute post-migratory stress factors in Germany

(e.g. a lack of privacy in the reception centre, fear about the well-being of family members still in flight, or worries about future legal proceedings; Hoell et al., 2021; Li et al., 2016; Ventevogel & Faiz, 2018). Due to the small sample size and the restriction to just two trauma spectrum disorders for the validation, the suggested cut-off of ≥ 21 should be seen as preliminary. Studies with bigger samples of newly arrived refugees in Germany are warranted in order to determine the utility of the RHS for this specific target group and to calibrate the cut-off to different context situations.

This study also documents that any screening procedure for newly arriving refugees cannot rely on the application of a screening instrument alone, but must allow for the detection of severe psychological crisis cases presenting with imminent suicidality or other risk of harm requiring immediate intervention by a mental health specialist. It is concerning that the current system for receiving refugees only identified a small percentage of these cases at the reception centre. The percentage of severe psychological crisis cases identified by the screening was 6.6% which is similar to a comparable study by Niklewski and colleagues (Niklewski et al., 2012) and much higher than the percentage of cases detected without a systematic screening for mental health disorders (Van den Heuvel & Stammnitz, 2018). However, the results showed that not all severe psychological crisis cases were identified as 'red flags' through the screening procedure, either. In order to improve the sensitivity of the screening procedure with regard to severe psychological crises including critical levels of suicidality, we propose a post-hoc adjustment to the procedure. This includes the introduction of a brief standardized psychoeducation about psychological crises as well as an explicit question about suicidal ideation adopted from the PHQ-9 ('Have you experienced thoughts that you would be better off dead or of hurting yourself in some way?') in order to facilitate the disclosure of suicidal ideation or other signs of severe psychological crises by the participants and, if need be, the referral through the ITA to the psychological check-up by the supervising psychologist. The familiarity with the ITA, the confidential setting, as well as the normalization of the topic through embedding it into a systematic health check-up may help to reduce hesitation to express these kind of thoughts and behaviours due to common barriers, such as fear of stigmatization, taboos around this topic, concerns about confidentiality, and lack of trust in the interviewing person (Deutsche Akademie für Suizidprävention [DASP], 2021; Kennedy et al., 2016; Satinsky et al., 2019; World Health Organization [WHO], 2021).

Table 3. Sensitivity, specificity, and AUC of the RHS.

		RHS score												AUC	95% CI	p
		11	12	14	16	18	19	20	21	22	24	25	27			
PCL-5/CA-PHQ-9 case	Sensitivity	1	1	1	1	1	1	.95	.95	.90	.90	.85	.80	.90	[.82, .98]	<.001
	Specificity	.46	.50	.54	.57	.61	.64	.68	.71	.71	.75	.75	.82			
RHS-14	Sensitivity	11	12	14	17			20	21	22	24	26	27	AUC	95% CI	p
	Specificity	1	1	1	1			1	.95	.90	.90	.90	.85	.91	[.83, .99]	<.001
		.43	.50	.54	.57			.64	.68	.71	.75	.79	.79			

Notes. AUC = Area under the curve, CI = confidence interval, RHS = Refugee Health Screener, PCL-5 = Posttraumatic Stress Disorder Checklist-5, CA-PHQ-9 = Clinician-administered Patient Health Questionnaire-9.

In general, we found that a systematic early mental health screening at the reception centre is feasible. In particular, the implementation was possible without causing significant disruptions of the existing initial immigration proceedings at the centre. However, it is likely that only a minority of the residents with a positive screening result received professional help after the screening due to well documented barriers for successful referrals of refugees to services within the mental health care system (e.g. Boettcher et al., 2021). Therefore, we propose a follow-up contact four weeks after the initial screening to provide additional support with accessing appropriate health care services. The follow-up contact is sought to facilitate the referral to treatment following relocation to more stable accommodation. However, additional measures will be necessary in order to establish a functioning referral system to services offering diagnostic clarification and – if need be – further treatment, e.g. more complementary health care structures for refugees to overcome the mentioned barriers. Only this way, can the screening measure contribute to identifying and preventing the development of chronic symptoms including the seemingly sudden onset of severe psychological crises requiring emergency treatment (Bozorgmehr & Razum, 2015; Lamkaddem et al., 2014). Last, in order to make the individual feedback to participants who did not screen positive for mental health problems ('green flag') more sustainable, we suggest using a standardized multilingual form for the feedback process.

There are a few important limitations to the present study. First, we were not able to offer participation in our study to a full cohort of consecutively arriving refugees which would have been informative to ensure the sample is more representative of refugees arriving in the centre and to determine acceptance rates. The reasons for this are stated in the method section above. In addition, the validation study was compromised by the absence of a gold standard for diagnosis in the language of the participants, as we were required to rely on instruments that had been successfully used in earlier studies and could be applied as part of an expert interview conducted by trained clinical staff. Third, the documentation of some of the psychological check-ups is incomplete due to time constraints which might lead to an underestimation of the occurrence and the detection rate of severe psychological crisis cases including suicidal persons. Furthermore, since we did not ask directly for suicidality in the screening interview, it might be that we underestimate the true rate of severe psychological crisis cases. It is important to note, that the detection of severe psychological crises cases was originally not envisioned as a primary goal of the screening procedure tested here. Future studies which apply the suggested adaptations of the screening procedure

might be able to detect even more severe psychological crisis cases.

5. Conclusion

This study confirms the need as well as the feasibility of a systematic mental health screening measure for newly arriving refugees who represent a high-risk group for trauma-related disorders. In particular, the findings suggest that the *Bielefeld Screening Approach* can be integrated both safely and efficiently into the proceedings at the reception centre during the initial immigration phase. In order to protect individuals with mental illness, a systematic screening may constitute a helpful first step to providing adequate treatment for refugees (Elbert et al., 2017; Schneider et al., 2017; Stingl, 2014) that should be adjusted to the available resources and individual needs over the further course of the immigration process in Germany.

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Disclosure statement

No potential conflict of interest was reported by the author(s). Dr. med. Van den Heuvel declares that he is an employee of the regional government (Bezirksregierung Detmold). The statements presented in this article do not necessarily reflect the perspective of the regional government (Bezirksregierung Detmold), though.

Ethical approval and consent to participate

The Ethical Review Board of Bielefeld University granted approval for the study. Approval number: EUB 2019-162-W1. Written consent was obtained from all study participants.

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Data availability statement

The data that support the findings of this study are available from the corresponding author (TS), upon reasonable request. The data are not publicly available because they

contain information that could compromise the privacy of research participants.

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