



# Unaccompanied foreign minors and mental health: Implementation and evaluation of the RHS-15 screening procedure for unaccompanied foreign minors

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## ABSTRACT

**Background and objective:** The recent notable increase in refugees' flows, with refugee children and adolescents relocating worldwide, posed severe challenges to the different national healthcare systems. Social groups such as refugees fleeing from their countries because of persecution, wars and violence are considered at high risk of developing mental health-related problems. Despite international and national policies legally regulating the reception process and protecting health-related rights, including the mental well-being of refugee migrants, there is a theoretical and applied need for evidence-based instruments and procedures to support mental health within this population. Recent evidence refers to the Refugee Health Screener-15 (RHS-15) as a reliable and valid instrument for the early detection of trauma-related mental health problems. In this scenario, this study aimed to test the RHS screening process within a multidisciplinary first intervention reception context for unaccompanied refugee minors.

**Design:** The RHS-15 was administered with the support of cultural-linguistic mediators to 81 unaccompanied minor residents in a first intervention facility in Milan, Italy. This study aimed to assess psychometric characteristics, such as reliability, sensitivity and specificity feasibility and its implementation within a first intervention reception process.

**Results:** The analysis resulted in the validation of the RHS in its 13-item format. The results highlighted and confirmed an efficient delivery, excellent reliability and a positive predictive and convergent validity of the 13-item version. Further analysis showed an excellent ability to avoid false negatives, although there was a clear tendency to identify false positives.

**Conclusions:** The early identification of vulnerabilities among refugee minors is recommended to promote their long-term overall well-being. Integrating the screening results with additional observational elements and more specific diagnostic tools is recommended to gain a comprehensive perspective of the minors' well-being.

## 1. Introduction

### 1.1. Unaccompanied refugee minors and psycho-social health-related issues

The current geopolitical situation is characterised by uninterrupted trends and flows of migrant people fleeing from their countries because of conflicts and persecution (Beverluis et al., 2017). According to the United Nations High Commissioner for Refugees (UNHCR) most recent

data collection (October 2022), 103 million people are of concern worldwide, with 36.5 million (41%) being children below 18 years of age.

Italy's refugee population has almost quadrupled in the last fourteen years, growing from 56,397 in 2009 to a maximum of 189,243 in 2019. Figures increased by 13.14% after the Covid-19 pandemic, reaching 144,862 refugees in 2021 (UNHCR Population Statistics Database).

Being a refugee means often experiencing stressful and traumatic situations before, during, and after migration (Bjartå et al., 2018). These

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experiences can act as risk factors for the development of mental health-related issues that can often impact the integration within the destination territory through consequences such as unemployment (Bjærtå et al., 2018) and non-integration within the social life of the destination community (Beversluis et al., 2017). In fact, within the refugee population, psychic disorders' prevalence is significantly high, ranging between 30 and 70% (Stingl et al., 2019). Experience of adverse events, lack of support and continuous exposure to the mentioned risk factors, both in their country of origin and in the destination country, may lead to the development of psychological disturbances such as sleep disturbance, anxiety and post-traumatic stress disorder (PTSD) (Fängström et al., 2019; Fazel et al., 2012; Huemer et al., 2009).

Referring to a specific sub-group, such as refugee minors, evidence from a systematic review highlighted higher levels of PTSD-related symptoms among unaccompanied refugee minors than norm populations and accompanied refugee minors (Fazel and Stein, 2002; Huemer et al., 2009). Accordingly, Fazel et al. (2012) focused on refugee minors and unveiled the components of the three stages of the journey. When in their home countries (first stage), young people are usually forced to flee because of wars and exposure to violence, with kids experiencing high instability both at the educational and family level. The journey (second stage) conditions can expose minors to dangers, often separated from their family by accident or for safety reasons. Once in the destination country (third stage), children may experience "secondary trauma", settling in a new cultural and educational context and often assuming adult roles.

Risk factors impact refugee minors for protracted periods and at critical stages of personality and social identity development, increasing the magnitude of the effect on such fragile personality structures (Gadeberg and Norredam, 2016). Moreover, refugee children and adolescents, in particular once relocated to high-income countries, usually live in disadvantaged areas and are integrated into new education systems (Alpak et al., 2015), with insecurity, cultural differences, racial discrimination and bullying being realities they often face (Fängström et al., 2019; Fazel et al., 2012). Accordingly, "children are especially vulnerable to developing mental health problems because they might find it difficult to adapt to new circumstances and to understand the consequences of the migration" [(Bean et al., 2006), p. 2]. In addition, the long waiting times and the uncertainty around the asylum-seeking process can negatively impact the mental health of refugee minors (ibidem).

## 1.2. European policies and screening tools

At the European level, the growing focus on migrants' mental health was supported by the increasing number of refugees reporting mental health issues (Alpak et al., 2015). This focus has been formalised through directive statements calling the states to systematically address and assess refugees' psychological issues, especially for the most vulnerable ones, such as children and adolescents. The global aim and priority are identifying refugee minors presenting with warning signs for mental health issues. This identification should be included within a framework of strategies and appropriate procedures activating an early and targeted delivery to specialised services and placement in adequate facilities. Over the last decade, public services addressed these issues and reported an increasing interest and need for available and effective screening tools to use from the early stages of contact with unaccompanied foreign minors (Bean et al., 2006).

At the national and local level, the exponential increase in the population of asylum seekers in Italy and Milan in the last five years, including unaccompanied foreign minors, has led to the creation of extraordinary reception facilities facing the need to identify valid and reliable quantitative and qualitative tools assessing mental health issues for refugee minors that can be used in less structured reception contexts within a short timeframe.

In this sense, despite the increasing relevance of the refugee

phenomenon and the shreds of evidence associating mental health problems and refugee minors, few psychometric mental health screening instruments have been developed and validated for these populations (Gadeberg and Norredam, 2016). Bean et al. (2007) assessed the preliminary psychometric properties for the Hopkins Symptoms Checklist-37A (HSC-37A) among four heterogeneous groups of refugee adolescents and unaccompanied refugee minors, while in a second study, Bean et al. (2006) examined the preliminary psychometric properties of the Reaction of Adolescents to Traumatic Stress questionnaire (RATS) among the same population (Huemer et al., 2009).

This paper answers the call for further assessment of the applicability of mental health screening instruments (Jakobsen et al., 2011; Mewes et al., 2018) to the specific need to detect mental health disturbance among unaccompanied refugee minors (Fazel et al., 2012; Huemer et al., 2009; Gadeberg and Norredam, 2016). To our knowledge, no studies assessed screening tools with an exclusive focus on this specific population.

This study aimed to assess the administration of the Refugee Health Screener-15 (Kaltenbach et al., 2017) (RHS-15) as an early screening tool for unaccompanied foreign minors in the Italian context. The RHS-15 (Hollifield et al., 2016) assesses some of the primary mental health issues among refugees, such as PTSD, depression and anxiety problems and can be administered as a self-report or within an interview session (see paragraph 2.4 for further details).

The general objective of this study was to assess the implementation process and the validity and reliability of the RHS-15 screening process within this population.

Then, following published validations procedures (Kaltenbach et al., 2017), we specifically aimed to assess:

- (1) the RHS-15 and RHS-13 factorial structures and their reliability;
- (2) Convergent validity of the RHS-15 and RHS-13 using BSI-18 and PCL-5 as comparing screening tools;
- (3) RHS-15 and RHS-13 predictive validity.

## 2. Method

### 2.1. Study design

The study consisted of two consecutive parts. In the first part, respondents completed the RHS-15 in approximately 20 minutes. After two weeks, respondents were administered a screening tools battery to complete the RHS-15 validation process.

The following instruments composed the screening tools battery: a) RHS-15 (Hollifield et al., 2013); b) Brief Symptom Inventory-18 (BSI-18: (Derogatis, 2000; Franke et al., 2017; Meijer et al., 2011)); and c) Post Traumatic Stress Disorder Checklist-5 (PCL-5: (Bovin et al., 2016)) (see paragraph 2.4 for further details about measures).

Due to very low or no proficiency in the Italian language, all tools were administered during an interview conducted by a neuropsychiatric unit specialist assisted by a linguistic-cultural mediator to improve the participants' comprehension of the items.

Before the mediator's assisted administration, the translated format of the items was presented to the participants in their native languages. Then, a double-blind translation procedure was performed between mediators from the same language to ensure accuracy. The item translations have been double-checked for accuracy by native bi-lingual speakers to reduce any possible bias.

The interviews were completed at the reception centers where the participants lived, followed by a discussion between the centre's educational staff and the professionals who administered it. This procedure helped to connect the subjects' overall score to the empirical observations led by the staff within the everyday real-life context.

## 2.2. Sample

The Italian expression “unaccompanied foreign minors” for unaccompanied asylum-seeking minors or unaccompanied refugee minors defines those minors not having Italian or other EU citizenship that did not apply for asylum and are, for any reason, within the territory of the State without care or representation by their parents or other adults who are legally responsible for them (Accorinti, 2016).

The sample who completed the RHS-15 was selected through convenience sampling (Etikan, 2016) and composed of unaccompanied foreign minors living for six months in reception facilities with medium to low educational regimes. The facilities considered were the Extraordinary Reception Centres (*Centri di Accoglienza Straordinaria*, CAS), reserved semi-autonomy apartments or youth communities for minors, with the children-educators ratio equal to or less than 5 to 1.

Eighty-one unaccompanied foreign minors were administered the RHS-15 during the first part of the study and completed the battery of tools chosen for the validation process two weeks after the RHS-15 screening. The average age of this final subsample was 16.49 (SD = 0.896, range 13–18,  $n = 81$ ), the totality was male (100%), and the majority came from Albania ( $n = 22$ , 27.2%), followed by Eritrea ( $n = 16$ , 19.8%), Tunisia ( $n = 11$ , 13.6%) and Kosovo ( $n = 10$ , 12.3%).

## 2.3. Measures

The Refugee Health Screener-15 (Hollifield et al., 2013) is a 15-item screening tool developed to detect and treat refugees experiencing emotional or psychological stress early. The rationale of the RHS-15 arises from the observation that the refugee population is composed of heterogeneous groups experiencing different stress-related symptoms on emotional, psychological and somatic levels (Hollifield et al., 2016). The authors aimed at having a screening tool that could efficiently predict the development of mental health-related issues in heterogeneous refugee groups. The tool includes thirteen items from the New Mexico Refugee Symptoms Checklist-121 (NMRSC-121) (Hollifield et al., 2009), a diagnostic tool assessing the intensity of traumatic experiences in refugee populations. These first thirteen items are on a 5-point Likert scale (from 0 “not at all” to 4 “extremely”), assessing the intensity of symptoms related to depression, anxiety and post-traumatic stress. An additional item (item 14) and a distress thermometer (DT – item 15) (ranging from 0 “no distress, everything is going well” to 10 “extreme distress, worse than ever”) were added to the item pool to investigate participants’ coping skills and how they react to stress. Specifically, the DT asks the participants to evaluate the distress experienced during the last week. The development and initial evaluation of this tool resulted in high reliability (Cronbach’s alpha 0.95) and excellent predictive and concurrent validity, significantly correlating with PTSD, anxiety and depression proxies (Hollifield et al., 2016). According to the authors, using the 13-item format may result in more efficiency without compromising sensitivity and specificity. RHS can be self-administered or administered by clinical and educational personnel with the help of an interpreter or mediator in case of low language proficiency of the participant. When using the RHS-15, it is recommended to classify as positive those cases scoring equal to or greater than 12 (equal or greater than 11 when using the 13-item format) in the first fourteen items and scoring equal to or greater than 5 on the DT (item 15) (Hollifield et al., 2016). Two studies on a refugee population in Germany confirmed the tool’s applicability (Stingl et al., 2019) and screening qualities (Kaltenbach et al., 2017), demonstrating its cross-cultural ability to detect mental health-related aspects of PTSD, depression, anxiety and somatisation. The RHS has also proven to be a reliable and valid screening tool in its 13-item version. Considering the first 13 items and excluding the additional item (item 14) and the DT (Bjærtå et al., 2018), RHS-13 showed similar psychometric properties compared with the original 15-item version, with a strengthened internal consistency and without impacting its concurrent and predictive validity (Hollifield et al., 2016).

The BSI-18 (Derogatis, 2000; Andreu et al., 2008; Asner-Self et al., 2006) is an assessment tool used to measure psychological distress in the general population. It contains three scales composed of six items each, evaluating somatisation, depression and anxiety traits rated on a 5-point Likert scale (0=not at all to 4=extremely). In addition to scores for individual scales, the three scales determine an overall score called the Global Severity Index (GSI). The identified cut-off threshold for positive cases is a GSI greater than 63 (Derogatis, 2000).

This tool was initially developed for the adult population (aged 18 and over), but BSI-18 has also been widely used and validated in many studies focusing on youth and young adults exposed to violence and trauma, both to assess reliability and validity or directly as an assessment tool in younger, especially if at risk, populations (Asner-Self et al., 2006; Al-Krenawi et al., 2009; Berman et al., 2006; Canada et al., 2007; Contractor et al., 2014; Grenon et al., 2019; Kim et al., 2021; Lancaster et al., 2016; Moscardino, 2008; Mustanski et al., 2010).

The PLC-5 (Blevins et al., 2015) is a tool containing 20 items (0 = not at all to 4 = extremely) estimating the presence and seriousness of PTSD symptoms. It is usually paired with clinical interviews to determine the symptoms’ complex nature and relevance within a set of trauma-related symptoms. The literature does not define the cut-off threshold, but scholars indicate 33 as a valid threshold in its practical application (Murphy et al., 2017; Weathers et al., 2013), even if further analysis of the psychometric properties of the tool has indicated thresholds higher than 33 (Blevins et al., 2015). This value corresponds to the total scores on the scale items, as the value is reliable enough to differentiate people with potential post-traumatic stress. Therefore, we adopted 33 as a cut-off justified by scholars’ recommendations and the authors’ clinical expertise for this study.

Recent studies showed that the PCL-5 is applicable for adolescents (Yang et al., 2017), and it has been used in traumatised Chinese youths (Liu et al., 2016; Wang et al., 2015; Li et al., 2020) after the Tianjin explosions, with excellent reliability indexes. In 2018, PCL-5 was used with Malaysian adolescents finding excellent reliability and validity (Murphy et al., 2018). This tool was used with adolescents and young people also in RCTs (Osorio, 2018), in mediation analyzes (Ogińska-Bulik and Michalska, 2020), used with Eye Movement Desensitization and Reprocessing (EMDR) methodology, specifically with adolescent refugees (Smyth-Dent et al., 2019) and proved to have a better diagnostic accuracy compared to the CAPS-5 in a German sample (Krüger-Gottschalk et al., 2017). Other scholars used PCL-5 as a screening instrument for PTSD with displaced populations (Ibrahim et al., 2018) to explain the factorial structure of PTSD (Fresno et al., 2020), to evaluate treatment outcomes for complex PTSD (Bongaerts et al., 2021) and in association with EMDR therapy in pregnant women affected by PTSD (Baas et al., 2017).

BSI-18 and PCL-5 have been used in a previous study as standards for the RHS validation process (Kaltenbach et al., 2017).

## 2.4. Data analysis

To achieve objective 1, we tested the monofactorial structure through confirmatory factor analysis (CFA) performed with MPlus v.8. The overall fit of the model was evaluated, considering acceptable absolute, relative, and parsimony fit indexes. These indexes were selected based on their statistical power and widespread use in the relevant statistical literature (Hu and Bentler, 1999; Kline, 2011). As indicative of absolute fit, we considered the values of the Standardised Chi-square ( $\chi^2/df < 5$ ), the Root Mean Square Error of Approximation (RMSEA  $< 0.08$ ), and the Standardised Root Mean Square Residual (SRMR  $< 0.08$ ). As a relative fit index, we used the values of the Comparative fit index (CFI  $> 0.90$ ) (Hu and Bentler, 1999; Kline, 2011). We adopted a maximum likelihood estimation with robust standard errors (MLR estimation) because of items normality and variance issues. The reliability and internal consistency of the two versions of the instruments were assessed using Cronbach’s alpha.

To assess the convergent validity, we tested the correlations (Pearson coefficient) between the two versions of the RHS and the PCL-5 and BSI-18.

To assess the predictive validity of the RHS, sensitivity, specificity, negative predictive value (NPV), positive predictive value (PPV), and Fisher’s exact tests were calculated, with positive cases defined for PCL-5 as higher than the cut-off threshold and a symptom score above the cut-off for the BSI-18.

### 3. Results

The results of the RHS-15 have been estimated and reported separately for the first block of 13 items, adding item 14 scores and highlighting the results of the DT (item 15) alone.

The DT contributed significantly to the increase of positive cases, as shown in Table 1, displaying the number of positive cases for the different RHS formats.

The BSI-18 results were calculated summing up the three sub-scales (somatisation, depression and anxiety) with the total score allowing us to calculate the GSI. Thirteen cases (16.05%) reported a GSI greater than 63 and were then considered positive (Derogatis, 2000).

Considering the results on the PCL-5, 14 cases were positive (17.28%), scoring equal or greater than 33.

#### 3.1. Factor analysis and reliability study

Previous factor analysis (Kaltenbach et al., 2017) revealed a one-factor structure for both RHS-13 and 15-item versions. Accordingly, we tested the monofactorial structure through confirmatory factor analysis (CFA) performed with MPlus v.8.

The 15-items version of the instrument revealed acceptable fit indexes to the data (15-item version:  $\chi^2(91) = 128, p < .001, \chi^2/df = 1.4$ ; CFI = 0.866, RMSEA = 0.063, SRMR = 0.074) while the 13-item version showed excellent fit ( $\chi^2(64) = 80.162, p < .001, \chi^2/df = 1.25$ ; CFI = 0.938, RMSEA = 0.048, SRMR = 0.063) with item 14 presenting not significant factor loading and item 5 having a low loading (0.387).

The reliability and internal consistency of the two versions of the instruments were assessed using Cronbach’s alpha. The alpha of the different versions of the RHS increased significantly when the DT was removed. Cronbach’s alpha increased from 0.76 for the 15-item version to 0.84 for the 13-item version, still below the ones obtained by Hollifield and coll. (2012) ( $\alpha = 0.92$  and  $\alpha = 0.93$ ) and Kaltenbach and coll. (Kaltenbach et al., 2017) (2017) ( $\alpha = 0.91$  and  $\alpha = 0.93$ ).

#### 3.2. Convergent and predictive validity

The predictive and convergent validity measures are instrumental in understanding the tool’s validity in gathering distress signals requiring a detailed diagnostic and more careful observation of the minor.

Referring to convergent validity, we tested the correlations between the two different versions of the RHS and the other mental health measures used for convergent validity.

Table 2 shows that the instrument’s 13-item version had an excellent correlation with the PCL-5, BSI-18 and relative sub-scales.

Concerning predictive validity, as highlighted by previous studies (Kaltenbach et al., 2017; Hollifield et al., 2016) and confirmed by these

**Table 1**  
Positive RHS screening results.

	N	%
RHS-13 score greater than or equal to 11	34	42%
RHS-14 score greater than or equal to 12	38	46,9%
DT score greater than or equal to 5	71	87,7%
RHS-15 score greater than or equal to 12 for the first 14 items or DT greater than or equal to 5	78	96,3%

**Table 2**  
Correlations between RHS and other measures.

	PCL	BSI-18	Somatisation	Depression	Anxiety
RHS13	.717*** <sup>a</sup>	.721*** <sup>c</sup>	.638*** <sup>c</sup>	.672*** <sup>c</sup>	.641*** <sup>c</sup>
RHS15	.654*** <sup>a</sup>	.632*** <sup>c</sup>	.528*** <sup>c</sup>	.614*** <sup>c</sup>	.564*** <sup>c</sup>

\*\*\*  $p = .000$ ;  
\*\* $p < .01$ .  
<sup>a</sup>  $n = 74$ ,  
<sup>b</sup>  $n = 77$ ,  
<sup>c</sup>  $n = 78$ ,  
<sup>d</sup>  $n = 81$ .

results (see Table 1), the 13-item format showed a greater ability to differentiate positive cases (34 participants [42%] scored higher or equal to 11) compared to the 15-item format and was considered for predictive validity.

The RHS-13 showed a good ability to identify subjects who experience distress (see Table 3). The instrument resulted in high sensitivity coefficients related to the PCL-5 and the BSI-18, while the ability of RHS-13 to identify people who did not experience a distressing situation (specificity) was weaker and reported lower values than the two comparison measures. Sensitivity and specificity are often inversely related. Generally, a screening test, such as the RHS, should be highly sensitive, while a follow-up test should result in high specificity (McNamara and Stacey, 2018).

In agreement with sensitivity and specificity results, RHS-13 showed adequate negative predictive capacity (Negative Predictive Value – NPV). Specifically, comparing the values obtained for PCL-5 and BSI-18 highlighted the instrument’s ability to avoid false negatives but showed its tendency to identify false positives (Positive predictive value – PPV). NPVs are, in fact, very high in line with what was also reported in Kaltenbach (2017), while PPVs values, on the other hand, are lower and very different from what is reported in Kaltenbach et al. (2017).

### 4. Discussion

The RHS-15 is a screening tool designed for the early detection of distressing situations within the refugee population. This tool was not originally designed and validated for a population of unaccompanied foreign minors. This population comprises people of different nationalities, with highly diverse ages, backgrounds and trauma sources such as the contexts of origin, destination and the journey’s conditions. In this sense, this study assessed the feasibility and psychometric properties of the RHS screening procedure in an Italian reception context for unaccompanied foreign minors.

Consistently with previous studies on refugee samples (Kaltenbach et al., 2017; Johnson-Agbakwu et al., 2014; Polcher and Calloway, 2016), results showed that the RHS, used as a screening tool for unaccompanied foreign minors, respected its psychometric qualities. The RHS-15, administered as a self-report instrument, showed good feasibility and psychometric properties validity in the examined sample. The shorter version, the RHS-13, proved to be even more time-efficient (Stingl et al., 2019) and resulted in having excellent psychometric qualities, better than its 15-item version, confirming what resulted in

**Table 3**  
Predictive validity and sensitivity/specificity analysis.

		BSI-18		PCL-5	
		Positive	Negative	Positive	Negative
RHS-13	Positive	11	23	13	21
	Negative	2	45	1	46
	Statistic	$X^2 = 11.56 p = .001$		$X^2 = 17.99 p = .000$	
	Effect size	$\Phi = 0.38$		$\Phi = 0.47$	
	PPV/NPV	.32/0.96		.38/0.98	
	Sens/Spec	.85/0.66		.93/0.69	

previous studies (Kaltenbach et al., 2017; Hollifield et al., 2016) and without compromising sensitivity and specificity.

As suggested by Hollifield and coll. (2016): “Current users of the RHS-15 may continue to implement it with confidence in its usefulness. If efficiency and time are key considerations, removal of either the coping item (item 14) and the DT (item 15) appears acceptable from a metric perspective” (p. 251).

Accordingly, some doubts can be raised about the DT’s capacity (item 15) to adequately distinguish the distress experienced by minors and sufficiently differentiate between positive and negative cases. The DT is administered in the initial stages of the reception process because of institutional and legislative needs. This could impact its ability to efficiently differentiate between positive and negative cases: an increased feeling of distress may be caused by the migratory pattern impacting personal identity and planning capacity. Within the first weeks of an unaccompanied foreign minor life in a reception center, there are likely to be strong feelings of unease and frustration caused by institutional processes and not by personal conditions. The RHS-13 showed a high capacity to identify minors experiencing stressful situations, confirming the ability to avoid false negatives, even if there is a clear tendency to identify false positives. Therefore, to avoid susceptibility, it is recommended to consistently integrate the screening results with additional observation and screening elements and use more specific diagnostic tools (Stingl et al., 2019).

The one-factor solution of both versions of the RHS found in Kaltenbach and coll. (2017) and Hollifield and coll. (2016) has been confirmed in our results.

The heterogeneity in terms of nationalities of the sample did not impact the psychometric properties of the RHS-13 that were excellent, with high predictability in detecting mental health problems.

Especially in its 13-item format, RHS resulted in high fairness and transparency relating to cross-cultural validity, guaranteed a simple implementation and proved to be easily understandable for the minors involved, thanks to the translation and the support of linguistic-cultural mediators working alongside the specialist throughout the administration process. Translators and mediators are widely used in mental health screening procedures with refugees and displaced populations (Hollifield et al., 2013). Previous studies recommended the presence of an interpreter to support the screening process (Derogatis, 2000). In our experience, linguistic-cultural mediators are crucial to facilitate the minor in understanding the questions and offer a confidential and culturally sensitive setting where the person does not feel stigmatised or medicalised (Hollifield et al., 2013; Al-Obaidi et al., 2015).

Mediators facilitate the RHS process but may also cause possible biases. Thanks to their ability, they translate concepts not present in the minors’ native languages, such as the “flashback” when discussing the trauma. In this adaptation of concepts, the professional supervising the screening has no control. In other situations, a minor may be numerical illiterate and have problems assessing their experience’s intensity on a Likert scale. In these cases, the mediator should use words such as “not much” or “a lot”. Another difficulty concerns the impossibility of using a varied psychological/emotional vocabulary. For example, the difference between “nervous” and “agitated” may cause misunderstanding or terms such as “helpless”, which in some cultures may mean “feeling alone”. The difficulty is to re-signify psychological experiences whose translation complexity can represent a bias.

The main limitation of this study is the complete absence of female participants. At the same time, the limited sample size has been impacted by the difficulty in reaching such a specific population in a fast-changing scenario, with a consistent number of participants dropping out after the first administration. This situation limited the possibility of assessing the instrument’s qualities by country of origin (Hollifield et al., 2016), not allowing for a consistent differentiation in accounting for the various cultural backgrounds (Kaltenbach et al., 2017). Nevertheless, this study addressed the need to assess RHS in a real-world public health setting (Hollifield et al., 2013).

## 5. Conclusions

This study aimed to fill the need for reliable mental health screening tools for refugee minors in Europe, validating the RHS for unaccompanied foreign minors in the Italian context for the first time. The results confirmed the RHS quality in its 13-item format as a valuable, valid and reliable tool for early risk identification. Therefore, the RHS-13 can be included in a screening procedure agreed upon between the main subjects involved in the care and promotion of unaccompanied foreign minors’ mental health (Social Services, Reception Facilities, Neuropsychiatry Services).

The high acceptance rates (Derogatis, 2000; Franke et al., 2017) of the RHS are especially important in the extent to which, administered as self-rating, could be more easily included in an initial screening or be used by people working with unaccompanied foreign minors, such as social workers, teachers or also lay people (Söndergaard et al., 2003).

Based on results from thorough programmes (Savin et al., 2005), our clinical expertise and protocols experimentations in the Italian context, the inclusion of a mental health screening such as the RHS at the beginning of the minors’ care path is recommended, even if more research about reliability in various ethnic groups is needed.

The recommended procedure concerns early risk identification of neuropsychiatric disorders and the reduction of false-positive cases by comparing the screening results retrieved with the RHS, educational observation and specific in-depth studies.

The results obtained in this study may strengthen the national and international network and share good practices for promoting mental health policies and good practices favoring unaccompanied foreign minors and setting an example for other national and international realities addressing the same challenges.

## Ethics

The study was authorised by the Milan Area 2 Ethics Committee with provision n. 1788 of 09/20/2018. The authorization covered a non-pharmacological, single institution, spontaneous, non-profit study entitled: “Validating a tool for early identification of mental health warning signs for unaccompanied foreign minors during initial reception: Refugee Health Screener (study typology: validation of a predictive diagnostic tool for prospective cohorts)”, protocol code UONPIA\_MIGRANTI\_01, promoter Fondazione IRCSS Ca’ Granda Ospedale Maggiore Policlinico di Milano, to be held at the Child and Adolescent Neuropsychiatry Unit.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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