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Assessing the YAM-5 and PeSSKi questionnaires as tools for mental health screening in migrant children ages 7–12 years living on the Thailand-Myanmar border

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Abstract

Background Migrant children face worse health outcomes due to structural inequalities and stressors specific to migratory status. In Southeast Asia, there are limited data regarding the prevalence of mental health disorders and symptoms of stress within the paediatric migrant population. Screening tools such as the Youth Anxiety Measure for DSM-5 (YAM-5) and the Perceived Stress Scale for Kids (PeSSKi) have been validated in non-migrant child populations. They may offer a practical means of detecting symptoms of anxiety and stress in migrant children in Southeast Asia. However, their suitability first must be assessed in Southeast Asian migrant communities before studies on validation can be performed.

Methods This qualitative study used cognitive interviews and semi-structured interviews to assess the understanding and applicability of these two tools amongst migrant children from Myanmar aged 7–12 years living in Tak, a Northwestern province in Thailand bordering Myanmar, to inform any necessary adaptations to improve useability prior to validation studies.

Results Interviews with 10 children indicated a good level of understanding of most ofthe surveys' contents, with 21 of the 28 questions on YAM-5 and 7 of the 10 PeSSKi questions needing no further clarification in any session. Four themes emerged from analysis of the semi-structured interviews: areas of uncertainty, understanding of the purpose of the questionnaires, sources of fear and anxiety and attitudes to mental wellbeing. Observational analysis of children's behaviour during participation suggested the surveys were engaging and useable.

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Conclusions The YAM-5 and PeSKKi screening surveys have good useability amongst migrant children living along the Thailand-Myanmar border and may be appropriate for eliciting symptoms of stress. They must next be validated to assess their psychometric properties and internal consistency and reliability in the same population.

Trial registration Thai Clinical Trials Registry, HCR23005, registered on 02 May 2023.

Keywords Mental health screening, Migrant health, Paediatric mental health, Youth anxiety measure for DSM-5 (YAM-5), Perceived stress scale for kids (PeSSKi), Mental health screening tools

Background

Evidence suggests that migrant populations may have poorer physical and mental health outcomes than non-migrant communities [1]. Their health is affected by financial, social, legal and cultural challenges; both those associated with their migrant status and, in some cases, those which motivated them to leave their original country [2]. Migrant children, especially those living in low-resource settings, are particularly vulnerable to poor health outcomes due to increased exposure to adversities such as malnutrition, communicable diseases and lower educational opportunities at an important time in their growth and development [3].

Healthcare provision to migrant children, particularly in low resource settings, tends to focus on physical health, prioritising the treatment of acute clinical conditions or syndromes [4], vaccinations [5], communicable diseases [6], and malnutrition [7]. There is less emphasis on the treatment of mental health disorders, and data are limited regarding the prevalence of mental health disorders and symptoms of emotional stress in migrant children [8] despite acknowledgement that the stressors they face such as discrimination [9], poverty [10] and unbelonging [11] are associated with increased incidence of childhood stress. This, along with the well understood relationship between childhood stress and adulthood mental health disorders [12], addiction [13] and chronic disease [14], suggests identifying and offering appropriate treatment to children experiencing emotional distress should be a priority.

Screening questionnaires, whereby a score is obtained by answering focused questions, are a standard means of identifying symptoms of mental health disorders and stress [15] and can help aid diagnoses [16]. They hold particular benefit in low-resource settings where resources to conduct more time-intensive diagnostic interviews are likely to be more limited [17].

Screening tools are often developed in high-income settings and must be translated, culturally adapted and validated before use in different settings. Their content may not be relevant or culturally-appropriate [18] and there may be difficulties translating technical vocabulary into local languages. Indeed, there is evidence that some mental health conditions may manifest differently across settings and cultures [19]. Moreover, there may be practical issues such as difficulty administering the questions or scoring the responses [20, 21]. Thus, the suitability of screening questionnaires should be determined in a population before validation studies are performed.

Migration from Myanmar to Thailand occurs for economic and political reasons [22]. Since the mid-20th century, there has been prolonged and repeated displacement of people into Thailand from Myanmar resulting from military rule and civil unrest. Others migrate to Thailand for economic reasons. Both populations may be escaping poverty, violence and ethno-cultural persecution [23], and potentially may seek economic or educational opportunities [24]. There are an estimated 200,000 migrant children living in Thailand [1], many of whom reside along the Myanmar border, with large diversity of ethnicity, culture, migrant generation and lived experiences [25]. A significant number are unaccompanied or lack official documentation and as a result have limited access to government-provided health care in Thailand. Whilst efforts have been made to expand the enrolment of health insurance to migrant families, the majority still rely on non-governmental organisations (NGOs) for health insurance [26] and free health care provision [27].

In this limited resource setting where childhood and infectious/communicable diseases are common, the physical health of children has been prioritized over their mental health. Previous research has identified high prevalence of depression in the adult population in this setting [28, 29], but less is known about the mental health status of children. There are currently no mental health services available and, to the best of our knowledge, no validated screening tools to detect symptoms of mental health disorders in children.

This study aimed to explore the practical useability and children's understanding of two mental health screening tools, the Youth Anxiety Measure for DSM-5 (YAM-5) and Perceived Stress Scale for Kids (PeSSKi), in migrant children ages 7–12 years living on the Thailand-Myanmar border. In this setting, where there the resources for in-depth diagnostic interviews are extremely limited, screening tools such as these offer a means of identifying individuals experiencing symptoms of psychological stress who may be appropriate for further evaluation. They are the first two mental health screening tools to be assessed for useability in children in this demographic.

Methods

Setting

The study was conducted at Shoklo Malaria Research Unit (SMRU), based in Tak province, Thailand, which provides free healthcare to the migrant population on the Thailand-Myanmar border. This population predominantly consists of Burman and Karen ethnicities, two linguistically and culturally distinct groups from Myanmar, as well as a smaller number of Burmese-Muslim individuals. Participants were recruited from SMRU's Mawker Thai (MKT) clinic, approximately 60 KM south of the border town of Mae Sot.

Participants

The inclusion criteria were migrant children aged 7–12 years attending the clinic. They could either be accompanying a relative or seeking medical treatment themselves, in which case only clinically stable children whose symptoms would not hinder their ability to participate were invited. Purposeful sampling of Burmese, S'gaw Karen and Po Karen speaking children were invited to ensure the acceptability of tools could be assessed in each of the main languages spoken by the migrant population. A sample size of ten children [30] was determined to be a sufficient number to meet the study endpoint (gauging children's understanding of the surveys). The parents and children who agreed to proceed with informed consent were brought to a private room where a study team member fluent in the volunteer's local language explained the study requirements, their ability to withdraw voluntarily, that interviews would be recorded and transcribed, and results from the study would be shared or published. Study activities proceeded only after signed informed consent was provided by the volunteers.

Questionnaires

We chose two surveys to assess, the Youth Anxiety Measure questionnaire for DSM-5 (YAM-5) and the Perceived Stress Scale for Kids (PeSSKi). The selection of these two measures was informed by a literature review. After reviewing available mental health screening tools, the YAM-5 and PeSSKI were felt by the study team to be the most appropriate for use in our setting as they use simpler terminology, and we anticipated fewer challenges in the translation process.

The Youth Anxiety Measure questionnaire for DSM-5 (YAM-5) was designed by international panels on childhood anxiety for use in children ages 8–18 years. It allows the child or parent to answer and screens for symptoms of major anxiety disorders such as separation anxiety disorder and generalised anxiety disorder [31]. It has been validated in children from the Netherlands [32], Iran [33], and Portugal [34]. Its appropriateness and validity in South-East Asian or migrant settings have not been assessed.

The YAM-5 questionnaire consists of 50 questions, answered using a five-point Likert scale. Part 1 (the first 28 questions) assesses for the major anxiety disorders and Part 2 (the second 22 questions) assesses for specific phobias (Appendix 1). In this study, only questions from the Part 1 were asked as anxiety disorders were more relevant to our population than specific phobias. Of the 28 questions, participants were asked either 1–15 or 14–28 to avoid fatigue effect.

The Perceived Stress Scale for Kids (PeSSKi) was developed by psychology researchers as a self-report tool designed to gauge levels of perceived stress with a focus on children ages 7–11 years. A series of 10 questions were determined to have adequate internal reliability and validity to capture general global stress [35]. As this tool was only recently developed, it has to date only been validated in children in the United Kingdom [35]. All 10 PeSSKi questions (Appendix 2), also answered on a Likert scale, were administered to each child.

Adaptations to the likert scale

Previous studies assessing mental health screening tools in adult migrants in the same setting showed that the use of Likert scales was problematic [36]. It was found that the subtle differences in descriptions of symptom severity such as 'a little bit' and 'moderately' was challenging to translate and conceptually difficult to interpret [21]. Evidence has also shown children have poor understanding of use of numbers in Likert responses [37]. Thus, for this study we chose to use pictorial means of quantity to communicate the response options. Evidence from the PeSSKi protocol [35] showed good practicality of using different numbers of stars, with one star meaning 'not at all' and five stars meaning 'a lot', so we designed a graphic displaying this (Fig. 1). We also trialled another option, with a range from thumbs up (yes) to thumbs down (no) (Fig. 2). These two scales were use alternately, and the useability of both were observed.

Procedure

The study team consisted of an English-speaking physician, an English-speaking medical student, and local healthcare staff from the clinic able to speak English and the local languages of Burmese, S'gaw Karen and Po Karen. We chose local staff from the clinic who were experienced working with children. They were familiarised with the YAM-5 and PeSSKi questionnaires, translated them into local languages and were trained regarding the potential for participation to be associated with emotional distress.

Clinically well children and their parent or caregiver who were present in the waiting area of the

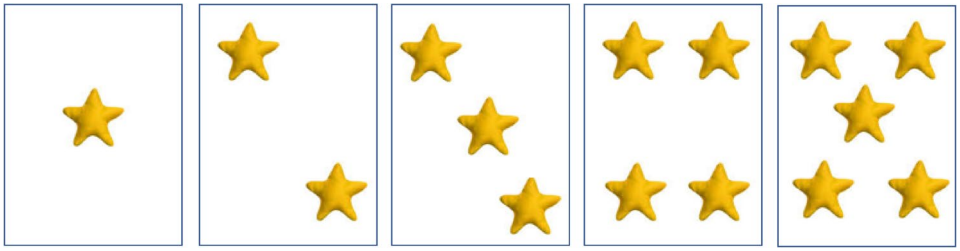

Fig. 1 Stars pictorial Likert scale

Fig. 2 Thumb up to down pictorial Likert scale

outpatient and inpatient departments of MKT clinic were approached together and invited to participate. Information about the study was provided. Written informed assent from the child and consent from the caregiver were obtained from those who agreed to take part (Appendix 3, Appendix 4). To minimise potential emotional distress associated with participation, discussions were conducted in a private room with two members of the study team, one of whom was always a member of staff from the clinic, and children were offered the choice of having their parent or caregiver be present with them or not during the interview.

To assess children's understanding of YAM-5 and PeSSKi, cognitive interviews were conducted individually with each child using verbal probing techniques [30] (Appendix 5). The child was asked each question verbally and they answered by pointing at one of the pictorial scale response options. They were also asked to give an answer verbally, which was compared to their scale choice to evaluate appropriate use of the scale options. They then were asked to re-phrase each question in their own words to evaluate their understanding. The extent to which they had correctly interpreted each question was judged by the study team member who could speak their language.

After the cognitive interview, a semi-structured interview was conducted to increase the study team's understanding of their cognitive responses. Semi-structured interviews were led by an English-speaking member of the team. The questions were asked aloud in English, and then translated orally by a team member who could speak the local languages. We followed a semi-structured question guide, consisting of 6 questions (Appendix 6). There were optional follow up questions which could also be asked if felt necessary for eliciting more extensive responses. The maximum duration of the cognitive and semi-structured interview was approximately 30 min.

Table 1 Participant demographics

Age	*n*
9	4
10	5
12	1
Gender	
Male	4
Female	6
Language	
S'gaw Karen	4
Pwo Karen	2
Burmese	4

During semi-structured interviews, observations were recorded of children's non-verbal behaviour. This was performed by a second study team member who gave particular attention to the extent to which the child was engaged by the surveys and their observed/observable emotional state when answering the questions. All interviews were recorded using an audio-recording device.

Analysis

Recordings of the cognitive and semi-structured interviews were translated and transcribed directly into English by members of the study team fluent in Burmese or Karen languages and English. Data analysis occurred after all interviews had been completed. Data saturation was not formally assessed. Thematic analysis following the model of Braun and Clarke [38] was conducted on these transcripts by an English-speaking study team member. Following review of and familiarisation with the data from the ten transcripts, the same study team member coded recurring features that emerged from the transcripts using an inductive approach. These codes were then categorised into themes following review and discussion with other members of the team.

Results

Participant characteristics

Ten children (the target sample size) completed the study. Participants' age, gender and first language are summarised in Table 1.

Cognitive interviewing

Participants showed good understanding of the majority of questions on both the YAM-5 and PeSSKi questionnaires. No clarification in any instance was needed for 21 of the 28 YAM-5 questions and 7 of the 10 PeSSKI questions. However, three questions in YAM-5 mentioned having panic or anxiety attacks (questions YAM8, YAM21, YAM26) (Table 2). This was an unfamiliar concept that needed explaining in all interviews. There was a better comprehension when specific symptoms of panic attacks were included in the questions such as palpitations (YAM13). The meaning of words or phrases was unclear in some instances. For example, in four interviews the word blush (YAM12) needed defining and in two interviews there was confusion over whether the question 'I get frightened when my parents leave the house without me' (YAM6) described parents leaving temporarily or permanently. One child was unfamiliar with the term 'lose my parents' (YAM19) which meant their parents dying, and needed the question rephrased to 'I have scary dreams that my parents die' in order to answer.

Children generally displayed greater understanding of PeSSKi questions, however there were some words and phrases which were unfamiliar to them (Table 3. Five struggled to answer the question 'I can think clearly' (PeSSKi1) without being given a specific context, three children did not know the Burmese or S'gaw Karen translated word for 'calm' (PeSSKi 3), four did not know the translated term for 'relaxed' (PeSSKi 3) and six were unfamiliar with the term for 'cope' (PeSSKi 10).

Table 2 Youth Anxiety Measure (YAM) questions provoking uncertainty

YAM6	I get frightened if my parents leave the house without me.
YAM8	I suffer from anxiety or panic attacks.
YAM12	I am afraid that others will see that I blush.
YAM19	I have scary dreams that I lose my parents.
YAM21	I have severe anxiety attacks, during which I tremble all over my body.
YAM26	I am afraid of having new anxiety or panic attacks.

Table 3 Perceived Stress Scale for Kids (PeSSKi) questions provoking uncertainty

PeSSKi1	I can think clearly.
PeSSKi3	I feel calm and relaxed.
PeSSKi10	Whatever happens I can cope with it.

Thematic analysis

From the semi-structured cognitive interviews four themes emerged regarding children's perceptions of the assessment tools: areas of uncertainty, understanding of the purpose of the questionnaires, sources of stress and anxiety, and attitudes to mental wellbeing.

Areas of uncertainty

All children reported finding the questions easy to understand and answer, and this was supported by the cognitive interview findings. However, at times there was lack of clarity regarding how some questions would screen for stress. For example, questions on a source of anxiety which they had not previously considered, and more generally those regarding stress and emotional wellbeing were novel and unfamiliar to them. Some children also described difficulty answering the questions because they did not want to make a mistake.

> *'Confused? I don't know, I understood (the questions) but was confused when you asked about when I am afraid and how I feel when I worry because I haven't been asked things like this before.' – Burmese speaking girl, 9*
>
> *'I was confused about number six (YAM7), being nervous about people seeing you eat or drinking. Why would you get nervous about this? I don't think this is something which would make you nervous.' – Burmese speaking boy, 9*
>
> *'I understand the questions, but it was hard to answer because I was feeling shy... I was worried that it would be difficult, and I would do it wrong.' – Burmese speaking boy, 9*

Understanding of the purpose of the questionnaires

There was good understanding that the tools were a means of identifying children experiencing stress. There were also comments that answering the questions could help direct support to them. One child made a comparison between using the surveys to assess emotional wellbeing and describing the symptoms of an illness to a doctor, showing an advanced understanding of the tools' purpose.

> *"When you ask the questions, this can make the children express their feelings and then the parents or person who is asking will know how they are feeling... It can make children feel good to talk about their feelings.' – S'gaw Karen speaking girl, 10*
>
> *'If adults know how the child is feeling then they can help them solve the problem and help them feel better. If the mum knows how the child is feeling it is easier for them to support them.' – Burmese speaking girl, 10*
>
> *'When you ask the questions, it helps the children speak freely about their feelings. If you don't ask them then they will not tell you things, you need to ask questions for the children to speak about how they are feeling. You can find out about if they are stressed if you ask them.' – Burmese Speaking boy, 9*

Sources of stress and anxiety

Challenges and stressors faced by children included separation from parents, exclusion or bullying from peers, and interacting with strangers. Six children reported animals as a source of fear, with many mentioning insects such as spiders and centipedes. Ghosts and bad spirits were consistently brought up, the existence of which is a commonly held belief in these communities.

> *'(I worry) for my father when he goes fishing, he goes very far in the water and takes a long time. I worry about him when he is gone and what might happen to him.' – Burmese speaking girl, 10*
> *'(I get upset when) my friends joke at me or won't play with me. The other children can speak Thai, but I can't so sometimes they won't play with me.' – Burmese Speaking boy, 9*
> *'(I am scared of) everything - ghosts, my mother, father, grandfather, aunty, uncle. I worry my mother will tell me off. And the teachers at school too. Dogs - I am worried they will bite me' – Pwo Karen speaking girl, 10*
> *'(I am scared of) ghosts (bad spirits) and animals like snakes, tigers, lions and wolves.' – S'gaw Karen speaking boy, 10*

Attitudes to mental wellbeing

Another theme which emerged was the children's perspectives on mental wellbeing, including whether they felt their feelings were understood and acknowledged by others. When asked, nine of the children felt that most adults were not aware when they felt stressed or sad, and they reported finding it hard to express their emotions to adults. There was a general feeling that they would prefer there to be greater acknowledgement of how they felt amongst their community.

Universally, families, particularly mothers, were reported as primary sources of comfort when children felt stressed. Three children also mentioned their religious beliefs and worshiping as a means of feeling better. It was common for children to say they did not like sharing their feelings with non-family members, reporting that they would find this scary. The children were asked if they were familiar with the term 'mental health'. Only one girl reported having heard this term and understood it as meaning 'crazy people'.

> *Adults ask you if you've eaten and things like this, but they don't ask directly how you are feeling. When I was younger if something happened on the way to school, or I didn't want to go so I was crying the teachers would ignore me and wouldn't ask about what was wrong.' – S'gaw Karen speaking girl, 10*
> *'A lot of children here have stress, but you have to ask them first to understand. If you ask them, they will tell you but only when you ask. Otherwise, you would not know.' – Burmese speaking boy, 9*
> *'I wouldn't tell the medic here (if) I was feeling stressed. I am scared that they will inject me with some medicine or use a needle on me.' – Pwo Karen speaking girl, 10*
> *'I express my feelings to my mother. Only my mother though not other people. I am afraid to tell*

Observational study

Every child was able to complete their interview. The longest interview was 28 min with a 10-year-old participant. All but one child engaged well; this child was one of the youngest participants (9 years old) and was observed to be the most nervous, making minimal eye contact and finding it difficult to answer the interview questions. Some of the children who appeared more nervous expressed anxiety about making mistakes or 'doing it wrong'. None of the children appeared to become upset or distressed by answering the questions, although one mother who was observing her child's interview did get upset when her child reported high levels of anxiety.

The pictorial scale using stars was much better understood than the thumb up/down scale. Children found responding with the thumb scale difficult, despite evidencing good semantic understanding of questions during cognitive interviewing, due to uncertainty on which orientation of thumb meant 'yes' or 'no'. The communication of severity was much clearer using the star scale. Children were confident in how the number of stars quantified severity as compared to the orientation of a thumb, which the children treated more as a 'yes' or 'no' binary. The children seemed more engaged when using the stars, treating the exercise like a game.

The length of sentences was much longer in local languages compared to English. This meant that questionnaire administration took longer, possibly affecting the ability of the children to engage for longer periods of time. The children had much more ease in answering closed questions on the questionnaires than they were at giving open, expansive answers during the semi-structured interview.

Discussion

Key findings

This study is the first to our knowledge to assess the usability and practical considerations of administering the YAM-5 and PeSSKi in a South-East Asian setting. Alongside exploration of the extent to which the questions could be translated and understood, we evaluated the cultural appropriateness of the questions by exploring local perceptions of mental wellbeing and common

sources of anxiety. The ease with which the surveys could be completed was also evaluated.

There was good understanding of the content of the two tools amongst participants. Four themes emerged from the cognitive interviews. Beyond semantic understanding which was generally acceptable (except for terms such as 'anxiety attacks', 'cope', and 'calm'), our data highlighted that the questions still provoked a degree of uncertainty. This was based on participants feeling certain questions were inappropriate for identifying stress and, more often, uncertainty due to anxiety associated with answering questions which were novel to them.

Participants described being unfamiliar with discussing their emotional wellbeing with adults and this likely contributed to the observed uncertainty. There was a sense that their feelings were underacknowledged by their community and most expressed wishes for greater attention to be paid to their emotions, which suggests they understood the rationale of the questionnaires and accepted its purpose.

Overall, our themes suggest acceptable useability of the tool amongst participants - they had good understanding of the contents and rationale behind using the tools, felt the questions were appropriate for gaining insight into symptoms of stress and anxiety, and understood how participation could be beneficial for themselves by opening discussions on their emotional wellbeing.

Participants were appropriately engaged with the two questionnaires. We also found that the star scale was more effective than the thumb up/down scale as means of communicating Likert scale answers.

Previous studies have evaluated the acceptability and validity of mental health screening questionnaires in pregnant migrant women in the same geographical area [21, 36]. These studies found that despite the assessed tools having acceptable psychometric validity and reliability, practical challenges and low acceptability of use amongst local staff meant they were deemed inappropriate to use in the local context. Restrictions in vocabulary of local languages resulted in difficulty conveying question nuance, with translated sentences being long and complex. This made using the tools time consuming and presented challenges in a population with low literacy rates. Additionally, there was a high level of emotional distress associated with answering the questions and it was felt participants were hesitant to share personal information with local staff who they often knew.

In our surveys, we found good acceptability and did not encounter the reported issues associated with restrictions in vocabulary of the local languages. This may be because our contents, designed for children, was inherently simpler so translations were easier perform and understand. Additionally, our questionnaires aim to detect stress and generalised anxiety, and the simple terminology facilitated translation and comprehensibility.

YAM-5 VS PeSSKi

The PeSSKi questionnaire may be a more appropriate tool for use in this setting than YAM-5 for a number of reasons. First, fewer issues were encountered regarding understanding of the questions, which generally were simpler and broader. It consisted of fewer questions, and therefore may be more practical to use in a lower-resource setting. Furthermore, PeSSKi, was designed to detect general levels of stress rather than specific anxiety disorders like the YAM-5 and would have greater practical applicability where mental health services are not available.

Strengths and limitations

This study benefitted from having team members from the local migrant community with insight into the potential challenges of administering the tools. Having the same study team members translate the material, conduct the interviews, and transcribe the recordings into English meant that subtleties in the meaning of the data were not lost. However, S'gaw Karen was their first language and Burmese, Pwo Karen and English were languages acquired in adulthood. Thus, the transcripts may have been limited by translation errors. A larger study team with members who spoke each local language as their first language may have mitigated this.

The questions on the tools were read aloud to the children due to anticipated low levels of literacy. Although the questionnaires were both designed to be self-completed by the participant, this method of administration would not have been feasible in the study population. Administration of half of the questions to a participant avoided fatigue effect but limited a comprehensive assessment of understanding within the same participant. Participants were offered the choice of having their parents or caregivers remain present during the interviews. Their presence may have limited participants' capacity to speak freely about their mental wellbeing. On the other hand, interviewing children alone may have been intimidating for children and potentially caused distress. On reflection, we opted to give children the individual choice and acknowledge that having parents or caregivers present during interviews may have influenced children's responses.

The children often needed prompting after initially giving one-word answers so that in-depth responses were difficult to elicit during semi-structured interviews. Offering group interviews or conducting the sessions in a less intimidating setting may have allowed for more expansive and insightful answers. The reflective and linguistic capabilities of younger aged children, as expected,

were less developed. This possibly was exacerbated by exposure to factors hindering language development such as atypical schooling and growing up in multilingual environments [39]. Whilst we found good useability and understanding of the stars pictorial scale, our work would have benefitted from more thorough preliminary evaluation of different pictorial depictions of Likert scales to inform optimal choices.

Conclusion

The PeSSKi questionnaire appears to be an acceptable and feasible tool to use among young migrant children living on the Thailand-Myanmar border. Questions were generally well-understood, and their responses could be quantified using a pictorial version of a Likert-type scale. We identified three terms, 'cope', 'calm' and 'think clearly', which need improved translation for better understanding. Further studies are needed to psychometrically validate the PeSSKi questionnaire in this population and assess its ability to identify symptoms of stress in children.

Concluding remarks and future directions

Our exploratory study has shown that migrant children living on the Thailand-Myanmar border are able to understand and complete translated versions of the YAM-5 and PeSSKi questionnaires. The contents of the surveys are relevant for measuring stress.

The PeSSKi questionnaire may be a more appropriate screening tool for young children in this setting. To validate this questionnaire, future work must evaluate its psychometric properties and internal consistency in line with other literature assessing the validity of mental health screening tools in non-Western settings. Our work suggests that simple language questionnaires offer good practicality for mental health screening in this setting - future research may consider assessing the useability of other similar measures.

If validated, PeSSKi potentially can be used to identify children with high levels of stress who may benefit from therapeutic interventions, and as an outcome measure to evaluate the effectiveness of interventions designed to reduce stress.

Abbreviations

YAM-5	Youth Anxiety Measure for DSM-5
PeSSKi	Perceived Stress Scale for Kids
SMRU	Shoklo Malaria Research Unit
NGO	Non-governmental organisation

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12887-026-06604-0.

Supplementary Material 1.

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Trial registration

This study was registered at the Thai Clinical Trials Registry (TCTR) under the number TCTR20230503002. The link to the website is:https://thaiclinicaltrials.org.

Authors' contributions

CSC conceived the study. CC, GF and JH designed the study with support from FN and BH. TPP, KH, HHW and JH performed the interviews, and contributed to the transcription and translation of the recorded interviews. JH, CSC, FN and BH wrote the initial manuscript. All authors revised the manuscript.

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Data availability

The datasets generated or analysed during this study are available from the last author on reasonable request and must comply with the data sharing policy of the Mahidol Oxford Tropical Medicine research Unit.

Declarations

Ethics approval and consent to participate

Ethical approval for this minimal risk study was granted by the Ethics Committee at the Faculty of Tropical Medicine, Mahidol University (TMEC 23–029), Oxford Tropical Research Ethics Committee (OXTREC 527 – 23) and the Tak Community Advisory Board (TCAB-202306). Informed consent was gained from participants and their caregivers. They were brought to a private room where a study team member fluent in the volunteer's local language explained the study requirements, their ability to withdraw voluntarily, that interviews would be recorded and transcribed, and results from the study would be shared or published. Study activities proceeded only after signed informed consent was provided by the volunteers.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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