Original article

Translation and Adaptation of the Revised Children's Anxiety and Depression Scale: A Qualitative Study in Belize

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A B S T R A C T

Background: Adapting data collection instruments using transcultural translation and adaptation processes is essential to ensure that respondents comprehend the items and the original meaning is retained across languages and contexts. This approach is central to UNICEF's efforts to expand the use of standard data collection tools across settings and close the global data gap on adolescent mental health.
Methods: We conducted transcultural translation and adaptation processes in Belize using the Revised Children's Anxiety and Depression Scale (RCADS). Items from the original scale were translated into Belizean English and Kriol, reviewed by local mental health experts, and discussed in focus groups. Cognitive interviews were conducted with adolescents and parents. The information collected was analyzed with cultural equivalence domains: comprehensibility, acceptability, relevance, completeness, and technical equivalence. Bilingual discussions of findings informed the final item wordings, and the adapted tool was back-translated.
Results: Adaptation of terms and specific expressions were done to improve comprehensibility and to ensure the appropriate clinical meaning. For example, the expression 'feeling scared' was perceived to imply immaturity or threaten masculinity and was adapted to 'feeling afraid.' Expressions like "shaky" were modified to "trimble" in Kriol. Statements were reworded as questions to enhance acceptability and comprehensibility.
Discussion: A culturally adapted version of the RCADS was developed for use among adolescents in Belize in Belizean English and Kriol. The transcultural translation and adaptation procedure can be applied for other settings or tools to design contextual adaptations of mental health instruments prior to their validation or use in new settings.
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IMPLICATIONS AND CONTRIBUTION

The work presented in this article contributes to the generation of culturally adapted tools to measure adolescent mental health at the population level. Therefore, the contribution is significant as it will allow for generation of relevant evidence on this topic.

Mental health problems constitute a major burden of disease for adolescents globally [1]. In recognition of the importance of addressing mental health conditions, the promotion of mental health and well-being is included in United Nations' Sustainable Development Goal 3 [2]. Valid and reliable data on adolescent mental health conditions are essential for designing and implementing effective policies and programs. Yet, data on the mental health of adolescents are sparse, especially in low- and middle-income countries (LMICs) [3] where 90% of the world's 1.2 billion adolescents live [4]. Obtaining such data requires culturally appropriate, relevant, and scalable instruments to measure adolescent mental health conditions. The lack of a common set of tools for measuring adolescent mental health conditions remains a major barrier to collecting data that is comparable across time and contexts [5]. Guidance for this common tool set should include processes for adaption in each setting where it will be used to ensure the data collected is valid and accurately captures the local situation on adolescent mental health [6].

This paper describes the application of the transcultural translation and adaption (TTA) [7] process to a selected set of items from the Revised Children's Anxiety and Depression Scale (RCADS) [8] tool in Belize. The Belize case study follows the protocol for cultural adaptation and validation developed as a part of United Nations Children's Fund (UNICEF's) Measurement of Mental Health among Adolescents at the Population Level (MMAP), which is an initiative aimed at developing data collection tools that can be used in specific settings to produce culturally sensitive and comparable data across countries [9]. The results from this proof-of-concept study will inform the application of the TTA in other MMAP country case studies.

Methods

Study setting

Belize is an ethnically, culturally, and linguistically diverse country with an estimated population of 398,000 inhabitants in 2020, of various ethnic origins including Hispanic, African descent, Mayan, and others; and 20% of the population (78,000) are adolescents [4]. Major languages spoken in Belize include English, Spanish, and Kriol [10]. English is the language of business and instruction in Belize, while Kriol has become an unofficial lingua franca and the majority of the population speaks or understands Kriol with different degrees of proficiency [11]. As Kriol's lexicon is predominantly based on English, the boundary between the two may be hard to define [12]. There is a growing attention to adolescent mental illness in Belize, and it has been prioritized in the country's national plan. According to recent estimates from the Belize Health Information System based on health facility data, the highest rate of suicide attempts in the period 2008–2017 was reported among the age group of adolescents 15–19 years of age [13]. However, national level data on adolescent mental health conditions is nonexistent.
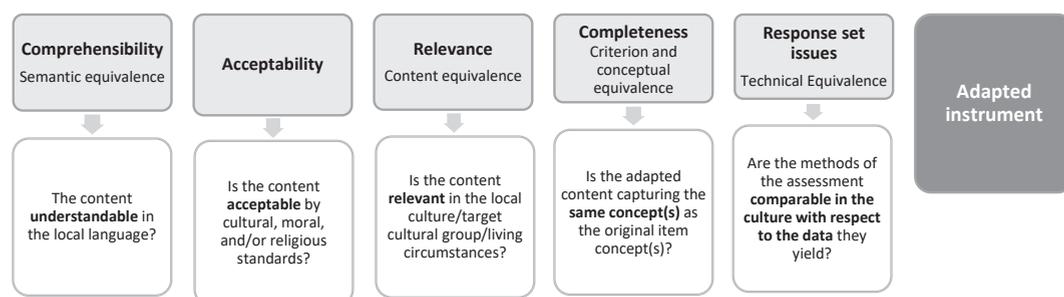
Study design

This study adapted TTA approaches, with qualitative data reported according to the consolidated criteria for reporting qualitative research checklist [14] (Supplement 1). The TTA process uses a series of systematic steps to assess an array of cultural equivalence domains [7].

Transcultural translation and adaptation (TTA) process. The TTA process (Figure 1, Box 1) is based on the principle that specific signs and symptoms of a condition, such as depression, may be overlooked if the diagnostic criteria from a specific culture is used without consideration of meaning and experience in another context [15]. Using tools that reflect culturally-specific psychiatric concepts is considered a reasonable starting point provided that in-depth ethnographic, participatory, and experience-near research is undertaken to understand the utility and relevance to other cultures [6].

Although there are a range of translation approaches, most of these are limited to forward translation (for example translating from English or the original language into the target language), then back-translating (from the target language into English) and comparing the two English versions. This approach is biased toward literal (verbatim) translations that may miss concepts that are locally relevant with high cultural significance or may lead to use of stigmatizing or technical jargon, and, therefore, potentially produce invalid and unreliable results [15,16]. A systematic approach that goes beyond accuracy of literal translations better assures cultural equivalence and acceptability.

The TTA process used in Belize was modeled after Flaherty and colleagues' principles on content analysis of cross-cultural equivalence [15] and a transcultural research process

Comprehensibility Semantic equivalence	Acceptability	Relevance Content equivalence	Completeness Criterion and conceptual equivalence	Response set issues Technical Equivalence	Adapted instrument
The content **understandable** in the local language?	Is the content **acceptable** by cultural, moral, and/or religious standards?	Is the content **relevant** in the local culture/target cultural group/living circumstances?	Is the adapted content capturing the **same concept(s)** as the original item concept(s)?	Are the methods of the assessment **comparable in the culture** with respect to the data they yield?	

Notes: Transcultural translation and adaptation process based on Flaherty 1988, van Ommeren 1999 and adapted by Kohrt 2011.

Figure 1. Flowchart for transcultural translation and adaptation process. Notes: Transcultural translation and adaptation process based on Flaherty 1988, van Ommeren 1999 and adapted by Kohrt 2011.

Box 1. Steps in the Transcultural Translation and Adaptation (TTA) Process

Step 1 - Translation and adaptation by bilingual experts. Items from the original RCADS tool in English were reviewed by two bilingual experts in Belize. An initial Kriol version of the tool was produced by them to be used in the subsequent steps.
Step 2 – Mental health expert review.
Belizean counselors who work with adolescents next reviewed the tool. A structural suggestion that came from this step was to frame declarative statements in the original tool as questions to enhance comprehensibility by adolescents. This change was corroborated as an improvement by adolescents during steps 3 and 4 of the process.
Step 3 - Focus Group Discussions.
Six FGD were conducted in June 2019, four with adolescents and two with parents of younger adolescents. The purpose of the FGDs was to systematically explore the most appropriate use of language and full equivalence of meaning for each item with participants. Discussions also included the confirmation of the suggested item wording in Belizean English and Kriol.
The FGDs were organized using the transcultural translation elements in the TTA monitoring form [7]. Discussions were conducted in English and Kriol by trained bilingual facilitators, who were experienced child psychologists, teachers, nurses, or school counsellors. Facilitators began with age-appropriate techniques for adolescents that included an adapted body mapping group activity and free-listing exercises to elicit common words and expressions to describe aspects of mental health, based on previous methods used with adolescents in Nepal and Nigeria [5,6].
A total of 28 adolescents participated in FGDs. FGDs were held separately for younger (ages 10–14) and older adolescents (ages 15–19), with an FGD for boys and an FGD for girls for each age group. FGD sessions took place in hotel conference rooms in Belize City. Two additional FGDs were conducted with a total of six parents of adolescents aged 10–14.
Step 4 - Cognitive Interviews.
CIs were conducted in July-August 2019. The purpose of the CIs was to discuss with individual participants how the items in the questionnaire were understood, assess suitability and interpretation of the response options, and to understand the process whereby responses were chosen. A total of 12 adolescents 10–19 years old and six parents of younger adolescents participated in individual cognitive interviews. Interviews lasted an average of 60 minutes.
Step 5 – Data analysis: Triangulation and integration of qualitative findings.
FGDs and CIs were audio recorded and data was transcribed verbatim for subsequent analysis. All data from transcripts were analyzed using NVivo software (12 version). Initial coding was conducted by three of the authors for the a priori TTA domains indicated above. Once an inter-rater reliability score of higher than 0.7 was met among the three researchers, a single researcher completed the remaining coding. Code queries were generated for each RCAD item along each equivalence domain, from which data were synthesized into code summaries to reflect these key dimensions of transcultural adaptation.
Step 6 – Final Back-translation.

Informal back-translation was used throughout the proceeding steps to discuss potential modifications. After all the Belizean English and Kriol version adaptations based on the prior steps were completed, a final English back translation was done and differences between the original English and the Belizean version were documented.

developed by van Ommeren and colleagues. The process and TTA monitoring form [7] (Supplemental Annex S2) was further refined for use with children and adolescents by adding age-appropriate activities [6]. The cross-cultural equivalence domains used in this approach were: comprehensibility (semantic equivalence), relevance (content equivalence), completeness (criterion and conceptual equivalence), and acceptability and other response set issues (technical equivalence). Inputs from these processes informed the final adaptation of the tool to be used for subsequent clinical validation which includes psychometric analysis of the adapted tool.

Instruments. The RCADS is a widely used instrument for collecting information on depression and anxiety symptoms in children and adolescents, with favorable psychometrics and evidence of cross-cultural invariance, suggesting comparable performance of the tool across different cultural groups [8,17,18]. The RCADS is based on the Spence Children's Anxiety Scale [19] with additional items on general anxiety and negative affect and major depression symptoms aligned with the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria [20]. It was originally designed as a 47-item questionnaire for ages 8–18, and a shorter 25-item version was also developed [21].

The instrument used in Belize included RCADS items covering the subscales of depressive, generalized anxiety, separation anxiety, social phobia, and panic disorders. Items related to obsessive compulsive disorder were not included because it is no longer categorized as an anxiety disorder in the Diagnostic and Statistical Manual of Mental Disorders DSM-5 [22] and due to its anticipated lower prevalence compared with other anxiety conditions and depression in the general adolescent population. This resulted in 22 of the 25 items on the RCADS-25 being used. In addition, to RCADS-25 items, 13 items from the original RCADS-47 were included in this phase, based on evidence from a previous multi-country study in which these items demonstrated comparable performance across 10 LMICS [18] (Supplemental Table S3).

Participants. Participants included a total of 40 adolescents of which 28 participated in focus group discussions FGDs. FGDs were composed of four groups selected based on age groups and self-identified gender: boys 10–14 years old (n = 7), girls 10–14 years old (n = 7), boys aged 15–19 years old (n = 7), and girls 15–19 years old (n = 7). In addition, 12 adolescents participated in cognitive interviews (CIs): six boys and six girls; 10–19 years old. A total of 12 parents of younger adolescents (10–14 years old) also participated in separate FGDs and CIs. The adolescents were recruited through the Belize Department of Youth Services, Ministry of Education, Youth, Sports and Culture. Parents were contacted through the Belize Ministry of Health. The sample was purposively selected through a combination of convenience and snowball methods to obtain the widest diversity of adolescents and caregivers from various ethnic and socio-demographic

backgrounds. Participants who met the age requirement (10–19 years) were only excluded from participation if they did not speak English or Kriol or were unwilling or unable to provide consent/assent.

Facilitators were trained to conduct FGDs and CIs using specific techniques for adolescents and mock exercises. Facilitators included local psychologists, and school counselors. All facilitators and all members of the Belize research team were trained in ethical practices for research involving human subjects.

Based on the MMAP protocol [9], the following activities were sequentially conducted: (1) translation of the original tool by bilingual experts; (2) review of the translated tool by local mental health experts; (3) focus group discussions with adolescents aged 10–19 and parents of adolescents aged 10–14; (4) cognitive interviews with same target population but different participants; (5) triangulation and integration of qualitative findings to finalize the Belizean English and Kriol versions; and (6) back translation of the tool into English.

Informed consent and ethical approval

Written informed consent and assent of minors were obtained from all participants before engaging in activities. Age-appropriate information sheets were provided for younger participants. Counsellors were available on-site in case any participant experienced distress and to coordinate referral pathways.

Research ethics approval was granted by HML IRB, an autonomous external ethics review committee in the United States authorized by the US Office for Human Research Protections within the US Department of Health and Human Services (HML IRB Research Ethics Review ID#: 161EBLZ19). Ethical oversight of the study protocol in Belize was provided by an ethics committee arranged by the Ministry of Health of Belize before initiation of study activities.

Results

Inputs from the FGDs and CIs informed modifications to the instrument's item wording and addressed issues related to comprehensibility, acceptability, relevance, completeness, and technical equivalence. Examples of changes by domain are presented below (all adaptations are included in Supplemental Table S3).

Comprehensibility

American English idioms in the original tools not commonly used in Belize or that potentially had a different interpretation in Belizean English and Kriol were modified. For example, the idiom 'empty' to refer to sadness in American English (RCADS Item 2) was understood as referring to states of hunger or poverty in Belizean English and Kriol. Therefore, the term 'empty' was replaced with, 'How often do you feel sad?' The word 'appetite' in RCADS item 15 'I have problems with my appetite…' was changed to, 'How often do you have problems eating too much or even too little although food is there?' because of local interpretations of the original phrasing to refer to health problems like gum disease and diabetes or to the lack of food rather than to the concept of having trouble eating because of body image issues or mistreatment from others because of their weight. The word 'foolish' in RCADS item 20 'I worry I might look foolish…' was not easily understood by the Kriol speakers and was replaced with the Kriol word '*schupid*' (stupid), which is considered acceptable and comprehensible.

Acceptability

Both adolescents and adults reported that none of the terms used for mental illness were stigmatizing or perceived to be pejorative. However, adolescents reported that some terms were not acceptable because of implications of immaturity or a threat to masculinity, and therefore not likely to be answered honestly. For example, girls aged 10–14 indicated that no one would answer honestly the question of 'feeling scared when sleeping on my own' (RCADS item 17) because this could be perceived as a 'babyish' behavior. They also suggested to use the term 'afraid' instead of 'scared'. The item was, therefore, changed to, 'How often do you feel afraid if you have to sleep on your own?'

Relevance

Item relevance discussions were the key in identifying needed culturally specific modifications. For instance, RCADS item 33, which refers to 'being afraid of being in crowded places' lists examples like shopping centers, the movies, buses, busy playgrounds. This list was replaced with more locally relevant 'crowded places like grocery stores, ATM lines, or the fair'.

Completeness

Completeness analysis looked at conceptual equivalence in terms of capturing the original concept. For instance, items that refer to somatic manifestations of psychological stress such as rapid breathing, dizziness, or fainting were often associated by participants with medical conditions like asthma or 'poor health, nutrition, or lack of nutrients'. These items were, therefore, dropped from the tool. In response to the item 'When I have a problem, I feel shaky' (RCADS item 28), adolescents noted that the term 'shaky' refers to the experience of feeling uneasy, nervous, or unfocused. They explained that the term 'tremble' is used in Kriol to capture the physical manifestation of anxiety. The item was then changed to, '*Wen yuh have ah problem, da how offen yuh trimble?*' in Kriol.

Response set issues

Belizean mental health experts strongly suggested framing items, which are declarative statements in the RCADS, as questions to improve comprehensibility in the local context. Based on their clinical experience with interviewing Belizean youth, they were concerned that declarative statements could imply that the adolescent should have whatever is being asked, and the bias would be toward answering 'yes'. They suggested that a question format would allow youth to be more comfortable stating that they rarely or never had a particular symptom without appearing disagreeable or to violate normative expectations. In addition, since the tool is intended to be useable as both a self-report questionnaire and something a school counselor, health worker, or researcher can administer verbally to an adolescent, the second person question format 'How often do *you*…' was considered less confusing than the first person statement format of 'I often…'

A range of format options for the items were discussed with adolescents, including declarative and question formats. The

adolescents agreed that a question format like, 'How often do you have trouble sleeping?' that allows for a frequency type response was more straightforward to answer than the declarative format of, 'I have trouble sleeping'. Thus, items were revised into question format with a corresponding set of frequency-based response options. The suggested set of frequency-based response options from Belize mental health experts were: 'all of the time, most of the time, some of the time, and none of the time.' These word-scale response categories were presented to adolescent participants along with other potential ways of capturing frequency such as a numeric scale (i.e., 3 = always to 0 = never), or a visual scale (four cups ranging from all four being full to all four being empty). Most adolescent participants preferred the word scale, so this format was used for the revised tool.

Discussion

The UNICEF MMAP adaptation process in Belize, informed by adolescents, parents, and local mental health experts, led to culturally adapted versions of the RCADS in Belizean English and Kriol. The process to engage adolescents was safe, meaningful, and participatory. It represents an important step towards addressing the issue of lack of suitable data collection tools for capturing needed comparable information on adolescent mental health across contexts [9].

A main recommendation was to change items from first person declarative statements 'I do…' to second person interrogatives with response options around frequency 'How often do you…?' Adolescents found this format easier to understand, less leading, and more amenable for replying with nuanced, intermediate responses (i.e., middle scores rather than the extremes of yes or no). This finding is consistent with previous studies, which suggest that presenting items as declarative statements can lead to agreeability bias in different contexts [23]. Disagreement with what is written on a form or presented verbally and perceived as coming from a voice of authority is discouraged in some cultures, especially by young people [5,6]. The adaptation of items from statements to questions is also consistent with studies in other LMICs that showed that a question format facilitates administration of surveys as interviews or self-completed questionnaires [24].

Some of the RCADS items were interpreted as non-specific to mental health and related to physical conditions (e.g., gum ache, hunger, etc.). These items were revised based on the feedback from the FGDs, and the changed wording was corroborated in the CIs to ensure the construct of interest was properly captured.

Working in two languages simultaneously

Kriol was a common language spoken by all participants. Discussions in Kriol were very helpful to clarify concepts. On a few occasions, the translation into Kriol led to alternative wording in English that was easier to understand and convey. Working in both Belizean English and Kriol languages simultaneously also helped identify problems of comprehensibility, especially with items that were too close in meaning to be interpreted correctly. For instance, it was challenging for participants to identify the difference between RCADS item 22 'I worry that bad things will happen to me' and RCADS item 27 'I worry that something bad will happen to me'. When the two

items were translated into Kriol, the wording was identical. Therefore, only one of the two items was retained.

Strengths and limitations

The TTA process enables the development of modifications to support comprehensibility, acceptability, and other domains while preserving the original clinical construct of each item. The TTA process does not include a comparison of whether adapted versions perform measurably better compared to the original items. As a next step, the finalized version from this exercise will be evaluated in a clinical validation study in Belize.

It is possible that language considered unacceptable or stigmatizing may capture self-perceptions consistent with experiences of depression and anxiety. However, given that the adaptation was intended to produce a tool that would be used on a national level including in schools and homes, we chose to minimize potentially negative language as much as possible.

It is important to note that the TTA process requires additional human, financial, and time resources compared to the standard approach of tool adaptation using the steps of translation and back-translation. However, it is the appropriate approach to ensure that collected data are valid and that items on a tool have not been misinterpreted due to language issues or local understandings. Also, the involvement of adolescents, parents, mental health specialists, and other stakeholders in the process of adapting and validating the instrument for the Belizean setting is central to a human-centered approach that will improve local uptake of findings when the tool is used. The process conducted in Belize also included capacity-building activities for staff associated with both the Ministry of Health and the Ministry of Education. These activities included training on ethical practices for research involving human subjects and on qualitative techniques like conducting focus group discussions and cognitive interviews.

Some limitations are related to the sampling approach. The sample was intended to be diverse in terms of literacy and sociodemographic background. However, the recruitment process relied on institutions working with youth for their recommendation of participants who may be interested and comfortable to speak about mental health. The approach for obtaining a diverse sample was followed by including participants from urban and more rural geographies around Belize City, but no metric was used to ensure proper balance among different groups. In addition, some aspects of reflexibility could also constitute a limitation. For instance, most facilitators were female, including those conducting FGDs with boys. If we had involved more male facilitators, this may have influenced the way participants engaged in the discussions. Another limitation is that the Belizean tool only includes Belizean English and Kriol, but it does not include Spanish or indigenous languages (Mayan dialects, Garifuna, etc.). In order to ensure that all Belizean adolescents have appropriate mental health tools, future work will need to attend to these languages as well.

Conclusion

The TTA process for the RCADS tool undertaken in the Belizean context facilitated the adaptation of the tool items to optimally preserve the original clinical relevance while also being acceptable and comprehensible for Belizean adolescents. This effort that included engagement of adolescents, parents, and mental health experts is a key component of the process to

ensure that reliable and comparable data can be collected on adolescent mental health conditions in Belize. The next step is evaluating the validity of the adapted tool in this context.

Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jadohealth.2022.05.026.

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