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Methodological Challenges in Developing a Youth Questionnaire, *Life & Health Young People*, for Comparative Studies in Thailand and Sweden

About Bridging the Language Gap between Two Non-English-Speaking Countries

Anchalee Thitasan *, Marianne Velandia, Chularat Howharn, Elinor Brunnberg

Authors:

Anchalee Thitasan, PhD Student, Registered Nurse, School of Health, Care and Social Welfare, Mälardalen University, Sweden. Email anchalee.thitasan@mdh.se

Marianne Velandia, PhD, Senior Lecturer, School of Health, Care and Social Welfare, Mälardalen University, Sweden. Email marianne.velandia@mdh.se

Chularat Howharn, PhD, Registered Nurse, Praboromrajchanok Institute for Health Workforce Development, Ministry of Public Health, Thailand. Email howharn@gmail.com

Elinor Brunnberg, PhD, Senior Professor, School of Health, Care and Social Welfare, Mälardalen University, Sweden and Mälardalen Research Center, Katrineholm, Sweden. Email elinor.brunnberg@telia.com

Abstract

Purpose: To develop a Thai questionnaire ชีวิตและสุขภาพของวัยรุ่นในประเทศไทย (TYQ) to explore girls' and boys' living conditions, lifestyles and self-reported health with special focus on sexuality, based on a Swedish questionnaire *Liv & Hälsa ung* (SYQ). Challenges in developing a youth questionnaire for comparative studies are described. **Design:** A multi-step translation, socio-cultural adaptation procedure and a mixed-method validation test were performed using English as a common language within the research group. Three versions of SYQ were used as a pool of questions to develop the questionnaire. **Findings:** From a field-test, unclear questions were identified and minor adjustments made. *Life & Health Young people* in a Thai version was successfully developed. The English version was used to bridge the language gap. **Conclusion:** This unique multi-step methodology, including mixed-method validation procedure, can be used by researchers in countries where English is not the main language.

Keywords: questionnaire translation, cultural adaptation, mixed-method validation, living conditions, lifestyle, sexuality

Introduction

This article describes the methodology used to develop a Thai questionnaire for young people from an original Swedish questionnaire *Liv & Hälsa ung* (Life & Health Young people) (SYQ). A unique multi-step methodology was employed to develop, translate and socio-culturally adapt the questionnaire from Sweden, a non-English speaking country, to be used in Thailand, another non-English-speaking country. The Thai questionnaire will be used to generate significant knowledge about young Thai people's living conditions, lifestyles and risk behaviors, with a special focus on sexuality, in a planned comparative study in Thailand and Sweden.

Background

It is well known that providing knowledge about trends in young people's health and lifestyles, including risk behaviors and changes over time, can help health and school agencies, as well as local and national authorities, to develop and monitor programs to improve the health and wellbeing of young people (Foti, Balaji, & Shanklin, 2011). In recent decades the interest in exploring young people's life and health has broadened in scope from the national level to the comparative international level. Thus, a methodological challenge in cross-cultural studies concerns how to adapt and translate a questionnaire developed in one culture into an equivalent questionnaire for use in another (Lee, Li, Aria & Puntillo, 2009; Sperber, 2004; Streiner & Norman, 2008; Weeks, Swerissen, & Belfrage, 2007). Nintachan and Moon (2007) found that a questionnaire that has been used successfully with young people in one country can be used in another country. However, preparing a questionnaire to be used in another country is a sensitive process requiring awareness of how communication is influenced by language, culture and generation. The methodological challenge is even greater if researchers in multinational research teams speak different languages and have limited proficiency in the languages used in each other's countries, and therefore need to use a third common language for communication.

Swedish Questionnaire Life and Health – Young People

The Swedish questionnaire Life and Health – Young People (SYQ) was originally constructed and created by a group of representatives from five country councils counties located in the central part of Sweden (Aytar, 2013). The SYQ was later individually revised to fit the cohort survey in specific counties. The different versions of SYQ have been used to investigate and monitor living conditions, lifestyles and self-perceived health of young people in a series of five population-based studies over a ten-year period (2004 to 2014). Cohorts from all schools in the five counties were invited to answer the questionnaire in classrooms during school hours. The questionnaires were anonymously returned in sealed envelopes. The response rates were 80% (Life & Health – Young People, 2015).

A majority of questions were identical in the different versions of the questionnaires, but modules containing special themes differed depending on which-county and year the

questionnaires were administered. In special schools, SYQ was provided in sign language for deaf and hard-of-hearing participants (Åkerström, 2014). One SYQ used in regular secondary school consisted of 11 modules (88 questions); family background (10 questions), health (12 questions), school situation, (14 questions), lifestyle (7 questions), accidents (2 questions), tobacco, alcohol and drugs (12 questions), love and relationships (6 questions), violence and criminality (4 questions), spare time activities (8 questions), security/participation (2 questions), visits to youth centers/care (7 questions), future (4 questions) (Sörmland 2014).

SYQ data has been used in several scientific articles written by different research teams (Åkerström, 2014; Annerbäck, Sahlqvist, Svedin, Wingren, & Gustafsson, 2012; Brunnberg, Lindén Boström & Berglund 2008, 2009, 2012; Sjöberg, Nilsson, & Leppert, 2005). The results of different versions of SYQ had a congruence and stability. This confirms the reliability and validity of the SYQ. However SYQ has not been used outside Sweden, so adapting and translating SYQ for use in Thailand would make it possible to perform international comparative studies, and also national surveys within Thailand.

Aim

The aim of this study was to develop a Thai questionnaire ชีวิตและสุขภาพของวัยรุ่นในประเทศไทย (TYQ) to explore girls' and boys' living conditions, lifestyles and self-reported health, with a special focus on sexuality, based on a Swedish questionnaire, *Liv & Hälsa ung* (SYQ).

Ethical Considerations

The project was approved by the ethical committee at Boromarajonani College of Nursing, Sanpasitthiprasong, Thailand (EC.1/2014) and the Regional Ethical Review Board in Uppsala, Sweden. In conducting a field-test in Thailand, all participants were informed by the researcher about the study and their right to withdraw at any time and without explanation. Parental consent was obtained before the field-test took place. The questionnaires were answered in the classroom during school hours and were anonymous. A contact person and phone numbers were provided to the participants in case they had additional questions or needed support.

Transnational Research Team

The research team was transnationally composed, with two Thai and two Swedish researchers. Due to the researchers' different native languages, English was used as common language for communication within the research team.

Method

Design

Previous versions of the Life & Health – Young People questionnaire used in 2011/2012 in three counties in Sweden for grade 9 of compulsory school and year 2 of upper-secondary school, served as a pool of questions for constructing a new version of the Swedish questionnaire (new SYQ) with a special theme about sexuality.

To develop a Thai version of the questionnaire a multi-step translation method was used, including a socio-cultural adaptation process and a mixed-method validation test.

Procedures

The multi-step methodology used in developing the questionnaire included three phases, which are presented in Figure 1.

Step	Procedure	Actors
Phase 1: Developing a new version of SYQ		
1. Create a pool of questions from a source questionnaire.	Questions of the three former versions of SYQ were selected. A pool of questions was created.	Two Swedish researchers.
2. Translation from source language to a common language.	A pool of questions was translated from Swedish into English, a common language in the research group.	Two Swedish researchers.
3. Develop a questionnaire from the pool of translated questions.	Questions relevant for comparative study were selected from the English pool.	Swedish and Thai researchers.
4. Back-translation.	The English questions were traced back to the original Swedish questions. The new version of SYQ was developed.	Two Swedish researchers.

5. Validation of the new version of the questionnaire.	Face validity of the new SYQ was independently reviewed and validated.	Two external Swedish experts.
Phase 2. Developing a Thai version of SYQ		
6. Forward translation from source language to target language.	The new SYQ was translated into Thai (TYQ).	Two professional bilingual translators (Swedish and Thai).
7. Cultural, linguistic, and generational validation of the target language questionnaire from youth perspective.	SYQ and TYQ were compared and validated by young people for generational relevance.	Two bilingual Thai male students living in Sweden.
8. Cultural, linguistic and generational validation of the target language questionnaire from an adult perspective.	TYQ was validated by a Thai adult.	A male senior monolingual Thai teacher living in Thailand.
9. Review of the target language questionnaire.	TYQ was reviewed in consensus agreements.	Swedish and Thai researchers.
10. Field-test of the target language questionnaire in a target sample.	Participant responses to the TYQ were quantitatively assessed.	Thai students (N=43), (10 boys and 33 girls) in grade 11.
11. Focus group discussion.	Experiences of participant responses to the TYQ were qualitatively assessed.	Thai students (N=43), (10 boys and 33 girls) in grade 11.

12. Modification of the target language questionnaire.	Based on the outcomes from the field test and focus group, each questions on the TYQ was reviewed. Problematic instructions and questions were revised in consensus agreement.	Thai and Swedish researchers.
Phase 3. Final translation procedure		
13. Checking the congruence of the developed questionnaires (source and target language versions).	Content and language of TYQ and SYQ were checked and an equivalent final version of TYQ and SYQ was reached.	Two professional translators (the same as in step 6).
14. Final check of the questionnaire (a common language version).	English version (EYQ) was checked against to SYQ and adjustment was made for congruence.	Language checked by professional Swedish – English translator.
15. New Thai version of the questionnaire developed.	Life and Health --Youth Questionnaire in three languages: Swedish (SYQ); Thai (TYQ); and English language (EYQ).	

Figure 1. Flowchart of the multi-step methodology, including the three phases of developing a Thai questionnaire, ชีวิตและสุขภาพของวัยรุ่นในประเทศไทย, of the Swedish questionnaire Life and Health – Young People

Phase 1: Developing a New Version of SYQ. The first phase was to design a new SYQ from a pool of questions used in previous versions of SYQ. The pool contained questions for grade 9 students in compulsory school (15–16 years of age) or year 2 students in upper-secondary school (17–18 years of age). The questions were largely the same in the questionnaires used in all three regions, but there were also variations between regions and between grades within the same region. The SYQ pool was translated into English to enable the Thai researchers to take part in developing a new SYQ to be used for both grades in Thailand. The translation was performed by the two Swedish researchers in the research team, both of whom communicate fluently in English.

The research team selected and further developed the questions relevant for the purpose of the planned comparative study between Thailand and Sweden. The new questionnaire was similar, but not identical, to the questionnaires previously used in all schools in one of the counties because that version also had a module with a sexuality theme. However additional questions focusing on sexuality were added to the new SYQ. After this, a back-translation from English to Swedish was done by the Swedish researchers. They traced the English questions back to their original Swedish counterparts. Face validity and content validity of the new SYQ was evaluated by two external researchers with previous experience as researchers within the SYQ project. Working independently of each other, the external researchers checked the fluency of the questionnaire and assessed whether it would yield relevant information, giving special attention to the extended module about sexuality. Unclear questions were revised in consensus agreement by the transnational research team and some minor adjustments were made concerning response patterns.

Phase 2: Developing a Thai Version of SYQ. SYQ was translated and adapted to create a Thai version. A multistep approach was adopted in the translation and socio-cultural adaptation process. In addition, a mixed-method approach, including a field-test and focus group discussion, was employed to validate the content of the TYQ (Curry & Nunez-Smith, 2014). Content validity can be defined as the extent to which a specific set of items reflects a content domain or item sampling adequacy (Wong, Hassali, Saleem, Yahaya & Aljadhey, 2011). In this study, content validity was confirmed by adults and young people as experts.

SYQ was translated into Thai by two professional translators. The main translator (T1) was a Thai native speaker and the co-translator (T2) was a Swedish native speaker. Both were knowledgeable in Swedish and Thai language and culture. The translation was checked in three steps. Firstly T1 and T2 made a linguistic and semantic check together. Then T1 checked wordings, considering their appropriateness for Thai young people. A third check of the Thai translation was made by T2 and T1 separately, to make sure the translation was clear and comprehensible. Some names of games (Super Mario, Tomb Raider and Resident Evil) and terms for medical conditions (ADHD) and alcoholic beverages (Martini) were left in English because of their widespread use in Thailand and lack of specific corresponding Thai words.

After the professional translators had reached consensus, TYQ was reviewed for *generational face validation*. This review was performed by a lay-panel of young people and adults. Representing young people, two bilingual Thai students belonging to the same generation as the target group and living in Sweden assessed both versions of the questionnaires (new SYQ and TYQ) individually. Representing adults, a senior primary school teacher who lives in Thailand and is a native-speaker of Thai assessed the TYQ from a cultural and linguistic perspective.

A mixed-method content validation of the TYQ was assessed through the field-test and a focus group discussion of the pre-final version of the questionnaire. The *field-test* was performed at a secondary school located in northeastern Thailand that was selected by the researchers. The school was selected from the same area where the future study will be performed, but this school will not be included in the main study. The field-test school was medium-sized with two grade 11 classes. The class was chosen by the school. The students were in the same age group as those who will be in the planned study. In total, 43 (10 boys and 33 girls) out of 44 students in grade 11 answered the questionnaire. One student was absent from school on the day of data collection. The questionnaire took 40–50 minutes to complete. The respondents individually answered the questionnaire in the classroom and returned the completed questionnaire in a sealed envelope to the researcher. No names or personal details were recorded.

Immediately after completing the questionnaire, all respondents were invited to take part in a *focus group discussion* to share their experiences of answering the questionnaire by answering some open ended questions. The focus group discussions concerned feedback on the types of questions, whether the questions were comprehensive, and whether they were suitable for the students, but not their specific answers. “How would you assess the comprehensiveness of the questionnaire?”; “What do you think about the length of the questionnaire?”; “Were there any questions that you found difficult or felt uncomfortable responding to?”; and “What changes would you suggest?” Written notes were taken during this discussion.

Following the field-test and focus group discussion, the questionnaire was reviewed question by question. The response pattern was compared to the field notes and some questions were modified by making the concepts more clear. For example the concept of bullying was defined as ‘By being bullied, we mean being repeatedly and intentionally mistreated by someone else’.

Phase 3. Final Translation Procedure. The language of the modified TYQ was checked a second time by the same professional translators as in step six in the figure. SYQ was adjusted to the modified TYQ and then translated into English by the Swedish researchers. After this procedure was completed the contents in TYQ and SYQ were as equivalent as possible. The language in the English questionnaire (EYQ) was checked by another professional translator and native-speaker of English living in Sweden. Finally, after a multistep procedure and mixed-method validation, the Life and Health Young People questionnaire existed in three

languages: Thai, Swedish and English. The EYQ was needed for communication between the researchers and in the scientific society.

Results

The Adapted and Field-tested Questionnaire

The field-tested version of the TYQ comprised 102 questions grouped in 13 modules (see Table 1). The number of questions in each module varied. All questions were closed-ended except for one question at the end of the questionnaire, which was open-ended to give the respondents an opportunity to make general comments. The response patterns were dichotomous (yes, no), Likert scales, and fill in the blanks.

After the field-test two questions were removed from the questionnaire. The question “Can you swim 200 meters or more?” was noted as unclear and removed, as 14 students responded “do not know” to this question. Another question was “How often during the last three months have you had the following symptoms? Headache, Migraine, Stomach ache (not menstrual cramps), Pain in the shoulders /neck, Pain in the back/hips, Difficulty falling asleep, Restless sleep.” These questions were not part of the main focus of the questionnaire and were removed to reduce the length of the questionnaire. At the same time, a question about the age of the respondent was added. In total, the final version of the questionnaire contained 101 questions (see Table 1).

Table 1. Modules and Number of Questions of the TYQ

Modules	Number of Questions in TYQ	
	Test version	Final version
Socio-demographic background and family	15	16
Wellbeing and health	12	11
School situation	5	5
Lifestyle	4	3
Friendship	3	3
Love, sex and relationships	24	24
Visits to youth centers, etc.	4	4
Computer and mobile phone habits	6	6
Drinking habits	5	5

Tobacco and drug use	6	6
Bullying or exposure to violence	14	14
Crime	2	2
Final questions about future plans	2	2
Total	102	101

Sensitive Questions

The reviewers from two different generations expressed different opinions about the sensitivity of the questions about sexuality might be for young people to answer. The younger reviewers did not perceive the questions to be too sensitive, while the adult reviewer thought the questions were too sensitive. The adult reviewer also expressed concern about the questions about drug use and was worried that they might not elicit truthful responses. In contrast, the young reviewers considered the questions about sexuality and drug use to be relevant and suitable. The research team decided to keep the questions about sexuality and drugs as in the field-test of the pre-final TYQ version.

Mixed-method Validation (Field-test and Focus-group Discussion)

Mixed-method validation integrated quantitative as well as qualitative approaches to approve the questionnaire.

Field-test. More than a third (35%) of the questionnaires (n = 15) were completed in full. However, in the remaining questionnaires, non-response was found for 42 questions. Most of those questions (n = 35) had 1 or 2 non-responses. Six questions had 3 to 5 non-responses. One question, about bullying, had the highest number of non-responses (n = 23). The internal loss was low in the questions considered sensitive by the adult reviewer. Only 5 out of the 24 questions about love, sex and relationships had 1–2 non-responses. Two questions about drug use had one or two missing answers.

Focus-group Discussion. The focus-group discussion showed that most respondents enjoyed answering the questionnaire as it helped them to better understand themselves. Some said that it was easy to understand the questions and respond. None complained about the length of the questionnaire. One student stated that the questionnaire covered the relevant questions in young people's lives. Moreover, a respondent suggested that surveys like this should be provided regularly. Two difficulties with answering the questionnaire were expressed. First, some respondents stated that a skip pattern – instructing the students to jump ahead to a later

question – was confusing. Second, some answer alternatives to the question about type of housing were difficult to understand.

Modification of the Questionnaire

The difficult questions about housing and bullying and the vague instructions identified in the field-test were modified. The young people considered the skip pattern to be difficult to understand. Skip patterns (Go on to question...) were removed from five questions, and an alternative choice was added instead. For example, instead of instructing the respondents who had no sexual experience to skip the question “When you had sexual intercourse the first time, whom was it with?” and go to a later question, an alternative choice was added: “Have not had intercourse”.

Questions about types of housing like *ฟาร์ม* (farm), and *ห้องชุดแบบมีกรรมสิทธิ์* (condominium) needed additional information to be understood, as forms of housing are constructed in different ways in different countries. The young people also seemed to find it difficult to respond to questions related to bullying, but this was not mentioned during the focus-group discussion. The analysis of the response pattern indicated that the highest rate of non-response concerned the question “Who were you bullied by?” The students may be unfamiliar with the concept (Olt, Jirwe, Gustavsson, & Emami 2010) or the item may not be relevant to the students. The instructions were improved by asking the students to read a note before answering the questions. The note explained the concept of bullying as follows: “By being bullied, we mean being repeatedly and intentionally mistreated by someone else.” The instructions were also improved by providing a relevant choice for students without experience of bullying. Students also may have not answered the questions about bullying due to fear of retaliation.

The Final Questionnaire in Three Languages

The multistep methodology, including a mixed-method validation procedure using English as a third language, resulted in a Thai version. The English version was used as a mediating instrument to enable the Thai researchers to take part in the process of developing a new SYQ in line with the already existing Swedish questionnaires. The work with all three questionnaires continued throughout the entire process of developing a Thai questionnaire equivalent to the Swedish questionnaire. The final result was the existence of a new version of the questionnaire Life and Health Young people in three languages versions. Before using the English questionnaire to collect data with children in an English-speaking country, it would be advisable to conduct a new field-test.

Discussion

This article describes the development and mixed-method validation of a questionnaire developed in Sweden, a non-English speaking country for use in Thailand, another non-English speaking country. The research team was transnational (Swedish and Thai) and used

English as a common language within the team. A multistep approach was adopted in the translation and socio-cultural adaptation procedure. A field-test was conducted to identify ambiguous or culturally inappropriate questions (Cha, Kim & Erlen, 2007), so that they could be revised or excluded to avoid potential problems when using the questionnaire. The mixed-method validation consisted of reviews by people in different social positions, generations and countries, a field-test of the questionnaire, and a focus-group discussion with young respondents about their experience of responding to the questionnaire.

Several language-related challenges emerged. The questionnaire was translated back and forth between three different languages: from Swedish into English, from English back into Swedish, from Swedish into Thai, from Thai back into Swedish, and from Swedish into English. Dealing with the multiple languages posed linguistic, semantic, and communicative challenges for the transnational research team. Another potential problem was that the Thai region being studied has both an official language used in schools, and a colloquial language used privately by ordinary people. However the students have learned the official language since preschool, so they are well-versed in the official Thai language in which the questionnaire was presented.

A methodological strength of this project is the multi-step translation procedure, with a team of translators working together and separately at different times. A lay panel with both bilingual and monolingual members from different generations was engaged to check the linguistic and contextual relevance. The researchers checked the version of the questionnaire that was in their first language. A field-test of the pre-final version of the questionnaire, combined with a focus-group interview, was carried out with young Thais to assess the clarity of the questionnaire and its linguistic and cultural relevance (Sagheri, Wiater, Steffen and Owens, 2010). One method of translating questionnaires, often considered the gold standard, is forward and backward translation (Beck, Bernal and Froman, 2003; Fernandes, 2014). This was not sufficient, however, for the complex linguistic situation that characterized this project. Furthermore, there is no empirical evidence that solely using forward and backward translation is the ideal form of translation (Swaine-Verdier, Doward, Hagell, Thorsen & McKenna, 2004). A review of 45 scientific articles (Acquadro, Conway, Hareendran, & Aaronson, 2008) provides evidence to support the idea that multi-step procedures lead to higher quality translations.

Another challenge was related to differences between cultures. Attitudes toward sexuality are different in Sweden and Thailand. Sweden is regarded to have a liberal view of young people's sexuality and premarital sex (Larsson, Tyden, Hanson, & Häggström-Nordin, 2007). In Thailand, sexual activity and premarital sex are stigmatizing issues, especially for females (Sridawruang, Crozier, & Pfeil, 2010). In this study, the Thai young people considered almost all the questions to be easy to answer, contrary to the opinion of the adult reviewer. This discrepancy seems to reflect a generational difference in attitudes to premarital sex and the sensitivity of questions. The adult reviewer's expectations are consistent with topics previously found to be difficult to capture in a questionnaire in Thailand

(Saingam, Assanangkornchai & Geater, 2012), while the views of the younger generation were more liberal.

The respondents in the field-test answered the questions about sexual activity and drug use with a high response rate and stated in the focus group discussion that the questions were interesting and relevant. The high response rate for almost all questions related to sexual activity in this study contrasts with results from a Chinese study reporting difficulty answering a question about sexuality, a topic that is culturally taboo in China (Cheung & Thumboo, 2006). The questions about alcohol, tobacco and drugs also had low non-response rates. Both male and female students answered the questions. Two questions about drugs had one missing answer, and one question had two missing answers. Our findings indicate that questions about sexuality, alcohol and drugs are not too sensitive for Thai young people to answer. The problematic questions identified in the field-test instead concerned the areas of housing and bullying. The concept of housing might be difficult to understand as the type of housing that is relevant in one country might be irrelevant in another country. Bullying is a more sensitive issue as well as the concept might be unclear and therefore difficult to answer.

In this study it was found that a transnational research team, collaborating translators, and reviewers from different generations shed light on important aspects of language and possible cultural discrepancies. By reaching consensus agreements between researchers and translators, the cultural adaptation of the questionnaire was established (Aegisdottir, Gerstein, & Cinarbas, 2008; Wong, Mohamed Azmi Ahmad, Saleem, Yahaya, & Aljadhey, 2014). In addition, the responses of reviewers were valuable for assessing the accuracy and validity of the questionnaire (Chang, Chau, & Holroyd, 1999).

All respondents were encouraged to voice their opinions about the pre-final version of the questionnaire immediately after completing it (Sagheri et al., 2010). This enabled the respondents to provide information about the questions and describe their reactions while their memories were still fresh. The discrepancy between the response patterns and the focus group discussion indicates, however, that information from respondents who found some questions difficult to answer is missing in the focus group discussion. So it may be the case that sharing opinions in a large group of both boys and girls, where the majority had no difficulty completing the questionnaire, can be daunting for students who did face difficulties. Their opinions may be overshadowed by the majority's opinion or by a gender difference. To ensure that all voices are heard, it may be better to hold smaller and separate focus groups for girls and boys to get varied opinions and make it possible to reformulate the questions directly. Finally, although the original questionnaire previously was validated in Swedish, it proved to be important to perform a mixed-method validation of the instrument through a field-test and focus group interview in Thailand to approve the questionnaire for use in Thailand or in a cross-cultural survey.

Conclusion

Having a transnational research team outweighed the difficulties, despite the researchers' having different native languages. It is a strong benefit for cultural adaptation to have researchers that know the cultures and the languages from an insider perspective and use another common language to discuss the cultural and language discrepancies until a consensus agreement is reached. A multi-step translation and adaptation procedure, using a third language such as English, can enable researchers to bridge the language gap. A mixed-method validation process using both quantitative and qualitative methods, like that described here, is recommended as a way to strengthen the relevancy of an instrument's content and language before collecting data in the main part of a study. In addition three different language versions were developed for communication between the researchers and in the scientific society.

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