ORIGINAL ARTICLE

Translation and Adaptation of the *Satisfaction with Amplification in Daily Life (SADL)* Questionnaire into Malay

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ABSTRACT

Background: Most questionnaires designed to assess satisfaction with hearing aid (HA) and its amplification are available in English, primarily benefiting English-speaking users. This can create challenges when distributed to non-English-speaking HA users, as language barriers and culturally inappropriate items may lead to inaccurate reflections of their satisfaction levels. In response, this paper aims to translate and validate the Satisfaction with Amplification in Daily Life (SADL) questionnaire into Standard Malay to better capture the experiences of Malaysian HA users, who predominantly speak Malay. **Methods**: To achieve these aims, the original SADL questionnaire (Cox & Alexander, 1999) was translated and validated through a multi-stage process to ensure cultural relevance and linguistic appropriateness for Malay-speaking participants. The translated questionnaire then underwent content and face validation. **Results:** During translation, several linguistic modifications were made to adjust morphology and syntax for Malay. After content validation, additional revisions were implemented to enhance comprehension for the Malay-speaking population. **Conclusion:** The Malay-translated SADL questionnaire has been meticulously translated and validated, however, further studies involving hearing aid users are encouraged to enhance its test-retest reliability and validity.

INTRODUCTION

Hearing is a critical sensory domain for ensuring a high quality of life. With normal hearing, individuals can communicate effectively, socialise, recognise threats, and fully experience their environment. However, hearing impairment has become a significant global healthcare issue due to its prevalence and long-term impacts on individuals and society. In Malaysia, a survey by the Institute of Public Health found that hearing loss affects 21.57% of the population, equivalent to one-fifth of Malaysians (Cheah & Lim, 2023).

Hearing loss often impairs emotional, social, communication, and educational functions, which can negatively affect a person's quality of life (Alexander & Chen, 2022). One effective intervention for people with hearing impairment is the use of HA, which offer substantial auditory rehabilitation to improve communication. Although the technology has advanced significantly in sound processing, issues such as poor sound clarity and disruptive background noise still limit user satisfaction (Kochkin & Rogin, 2022). To address these challenges, satisfaction surveys are used to collect feedback from hearing aid users, providing manufacturers and professionals with valuable insights to improve their services.

Among the available hearing aid inventories are the Client Oriented Scale of Improvement (COSI) (Dillon, James, & Ginis, 1997), the Abbreviated Profile of Hearing Aid Benefit (APHAB) (Cox et al., 1999), and the Satisfaction with Amplification in Daily Life (SADL) survey (Cox et al., 1999).

While COSI and APHAB are validated tools focusing on the benefits of hearing aid use, only SADL specifically measures user satisfaction. It has been translated into various languages, including Mandarin, Danish, Spanish, Brazilian Portuguese, and Swedish, though it has yet to be adapted for Malay-speaking users (Wong et al., 2023).

Satisfaction is an essential outcome in HA fitting, reflecting users' emotional experiences with their devices (Alexander & Chen, 2022). Wong, Hickson, & Zhang (2023) define HA satisfaction as a positive emotional response during device use, which may not always correlate directly with the device's measured performance. For example, users may report significant hearing benefits but still feel dissatisfied due to aspects like sound quality (Costanza, Simons, & Barry, 2023). Therefore, understanding the factors contributing to the satisfaction is crucial for optimising the user experience, as audiologists can use this information to help users achieve a higher level of satisfaction.

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Contributing factors to satisfaction include duration of use and device-related aspects like sound clarity, reliability, and comfort in loud environments (Wong et al., 2023). Kochkin (2022) highlighted that satisfaction influences users' compliance, likelihood to recommend the device, and brand loyalty, with new users often reporting higher satisfaction than experienced users (Costanza et al., 2023). Additionally, Kochkin found that performance, relative to the cost and quality of the sound, is crucial, with satisfaction ratings in these areas sometimes falling below 80%.

Given the importance of accurately capturing social and economic indicators that reflect human needs, self-assessment surveys are valuable tools for measuring patient satisfaction (Theofilou, 2023). Evaluating the effectiveness of rehabilitative services through patient perspectives has gained global acceptance, underscoring the need for a validated Malay version of the SADL to assess satisfaction among HA users in Malaysia. SADL has yet to be adapted or validated in Bahasa Melayu. Without this validation, responses may fail to fully capture cultural nuances and language-specific interpretations, potentially impacting the accuracy and reliability of satisfaction measurements among Malay-speaking users.

Following the gap in the literature, the objectives of this study are: 1) to translate and adapt SADL into Malay and 2) to validate the translated questionnaire so that it can be used to understand the satisfaction level of Malay-speaking HA users.

MATERIALS AND METHODS

The SADL Questionnaire

With 15 items, it assesses HA user satisfaction across four key areas: *Positive Effect, Service and Cost, Negative Features, and Personal Image*. The *Positive Effect subscale* evaluates on communication and social interactions with hearing aids, indicating improvements in users' quality of life. The *Service and Cost* subscale examines satisfaction with support from providers and the affordability of HAs, impacting perceived value. *Negative Features* addresses issues like sound distortion or discomfort, identifying areas where devices may fall short. The *Personal Image* subscale captures users' feelings about how hearing aids affect their self-image and social comfort. Together, these subscales provide both individual and composite satisfaction scores, offering a comprehensive view of the user experience. The SADL questionnaire provides a Global satisfaction score and a profile of subscale scores, which are based on a 7-point scale. Higher scores generally reflect greater satisfaction with hearing aids, whereas lower scores highlight areas that may require improvement. After obtaining the permission from the author, the research group started to translate the English text.

The Translation Process

To develop the Malay version of the SADL, a structured translation process was carried out, adhering to standard translation and adaptation methodologies used in health assessments. Initially, two bilingual translators who are also audiologists translated the original English text. Their expertise in both language and audiology ensured that the specialised terminology used in the questionnaire was accurately rendered. This step is aligned with translation best practices, which recommend involving experts familiar with the subject matter to maintain conceptual and linguistic accuracy (Beaton et al., 2000; Jones et al., 2023).

In Phase 1, the translated texts were reviewed by an expert panel, which comprised a senior audiologist/ academics, a linguist and a research student, to examine potential differences in morphology, syntax, and cultural nuances. This review is crucial in identifying and addressing issues related to cultural relevance and linguistic equivalence (Maneesriwongul & Dixon, 2004). These two texts were then reconciled to achieve the best translation. Following this, the reconciled draft underwent backward translation by another bilingual translator who are not an expert in the field of Audiology. This is to ensure that the background knowledge did not interfere with the translation, which helps identify discrepancies and ensures that the translation is accurate and retains its original meaning (Brislin, 1970; Theofilou, 2023).

Phase 2 of the deliberation process involved analysing the differences found in the backward translation and refining the Malay version. The final version was then validated for both content and face validity, ensuring it was culturally appropriate and methodologically sound for the Malaysian context (Vallerand, 1989). These steps reflect a rigorous process for translation and adaptation, ensuring both linguistic and conceptual equivalence, as outlined in translation studies (WHO, 2023; Beaton et al., 2000). The overview of the process is presented in Figure 1. The linguistic analysis in phases 1 and 2 will be reported in the Results section.

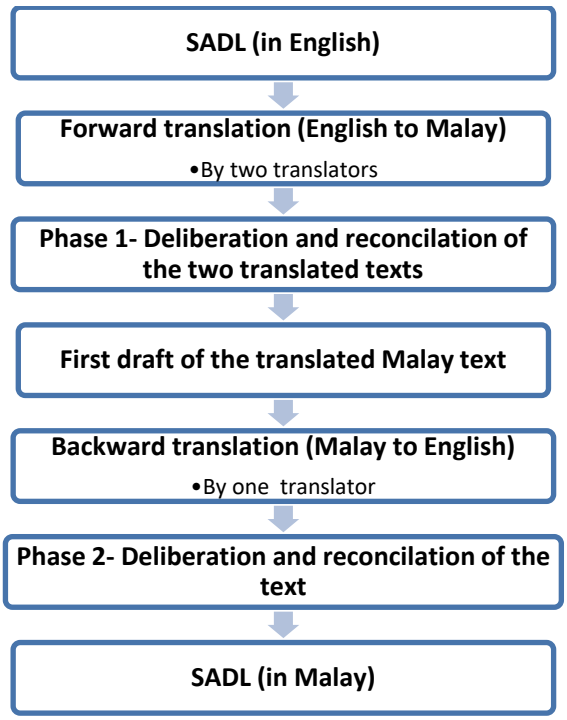

Figure 1: An overview of the translation process

The Validation Process

These newly translated questions were then undergo the content and face validation,

Content validation

The content validation was completed by three different professionals who are linguist, audiologist and speech-language pathologist who were selected for their expertise aligning with Yusoff (2019) recommendation that a minimum of two panellist is sufficient for content validation. The experts were given a set questions to review the scale items and validate whether the instrument appropriately represents the construct. The questions are: 1) Are the instructions well understood?; 2) Does the rating scale accurately measure the items?; 3) Does each item reflect the satisfaction with amplification in daily life?. The experts must rate each item either yes or no.

Face validation

Face validation assesses whether the Malay translated SADL questionnaire appears subjectively appropriate, clear, and relevant to respondents and experts. This is a preliminary validation step to ensure that the items are easy to understand and seem to measure satisfaction with hearing aid as intended. Three normal-hearing-non-experts participated in the face validity assessment to evaluate the organization, appropriateness and logical coherence. As this face validity primarily focuses on whether the instrument appears to measure its intended at face value, no strict minimum number of non-experts is required (Masuwai, 2024). During the process, validators were given time to review all the items and respond with 'Yes' or 'No' to indicate whether the items were understandable and acceptable, along with providing additional comments if necessary.

RESULTS AND DISCUSSION

The Linguistic Analysis

This section will present an analysis of the syntax, semantics and morphology involved in the translation process.

Syntax

Based on the forward translation of the questionnaire, it could be observed that both translators used a direct translation. Table 1 provides a side-by-side comparison of a sentence in English with its translation in Malay in this case. The table shows each component of the sentence broken down by parts of speech, illustrating how each part of the sentence aligns linguistically in the translation process.

The example of the sentence in English: "*Compared to using no hearing aid at all*," is segmented into parts of speech: verb "compared", preposition "to", and noun phrase "no hearing aid at all". The translation renders this as "Berbanding dengan tidak menggunakan alat pendengaran langsung…" where each part of speech in Malay aligns to create an equivalent meaning.

This table highlights both structural and lexical differences between English and Malay. For instance, the Malay translation substitutes "no" with "tidak menggunakan" (meaning "not using"), which alters the sentence structure but preserves the intended meaning. This breakdown is useful for translators to understand how different languages may require adjustments in grammar and syntax to maintain the original meaning and context.

Table 1: Examples of the equivalent of part of syntax structures of English and Malay in the questionnaire for item no. 1

English	Compared	to	using	no	hearing aid	at	all…
Parts of speech	VERB	PREPOSITION		NOUN			
Malay	Berbanding	dengan	tidak menggunakan		alat pendengaran		langsung…

This demonstrates a systematic approach to translation by first identifying parts of speech in the original language to ensure an accurate match in the target language. This process includes semantic adaptation, where phrases are adjusted to fit linguistic norms, even if they differ structurally. Structural flexibility allows certain elements to be added or removed, ensuring natural expression while maintaining the original meaning. This approach aligns the translation to the original sentence's intent, even when direct word-to-word translation is not possible.

Throughout the translation of this questionnaire, similar style of translation is noted. The semantic features were maintained in the target language.

Semantics and morphology

One of the challenges faced during the translation process was selecting Malay words that convey nuances similar to those of the original English terms. For instance, words like 'notice,' 'appearance,' 'natural,' and 'less capable' have several possible equivalents in Malay, as shown in Table 2.

Table 2: Examples of English words with multiple equivalents in Malay

English	Malay equivalents	Linguistic decision
Notice	Perasan Kenyataan	Perasan
Appearance	Penampilan Kemunculan	Penampilan
Natural	Semula jadi Bersahaja	Bersahaja
Less capable	Kurang kemampuan kurang upaya	Kurang upaya

For the word 'notice,' two Malay equivalents were considered: 'perasan' (to notice) and 'kenyataan' (a statement). After careful deliberation, 'perasan' was chosen as it better fits the questionnaire's context. For 'appearance,' two alternatives were identified: 'penampilan' (the way someone looks) and 'kemunculan' (to appear). 'Penampilan' was selected to describe how HA users feel about their appearance with the device. Similarly, the word 'natural' has multiple Malay translations, including 'semula jadi' (natural environment) and 'bersahaja' (to act naturally). For this questionnaire, 'bersahaja' was chosen as it aligns more closely with the intended meaning. Another term requiring semantic decision was 'less capable,' which could be translated as 'kurang kemampuan' (financially unable) or 'kurang upaya' (person with special abilities). After panel discussion, 'kurang upaya' was deemed more appropriate.

The linguistic analysis of the questionnaire translation reveals that translating from English to Malay requires careful consideration of syntax, semantics, and morphology to preserve meaning and ensure cultural appropriateness. The syntactic analysis demonstrates that while direct translation may sometimes be feasible, structural adjustments are often necessary to align with Malay grammatical norms. The example in Table 1 illustrates how specific English sentence components are adapted in Malay, showing how structural flexibility is employed to maintain the sentence's original intent and readability.

Overall, this translation process highlights the importance of linguistic adaptation in cross-cultural contexts, where maintaining the original meaning requires balancing direct translation with context-sensitive modifications. The analysis serves as a valuable guide for translators, underscoring the need for systematic approaches that consider both linguistic and cultural nuances in order to achieve an accurate and effective translation.

The Validation

Content validation

The expert review of the questionnaire content substantiated that the translated questionnaire is suitable for HA users and effectively captures their level of satisfaction with amplification. However, several adjustments were made to ensure the questionnaire is appropriate and relevant for the local population. These changes included refining the overall format and simplifying instructions for clearer understanding (Table 3).

Table 3: Simplification of the Malay instruction following the content validation

English	INSTRUCTIONS Listed below are questions on your opinions about your hearing aid(s). For each question, please circle the letter that is the best answer for you. The list of words on the right gives the meaning for each letter. Keep in mind that your answers should show your general opinions about the hearing aids that you are wearing now or have most recently worn.
Malay	ARAHAN: Berikut adalah soalan-soalan mengenai alat bantu pendengaran anda. Untuk setiap soalan, anda diminta untuk membulatkan huruf yang paling sesuai dengan jawapan anda. Di sebelah kanan anda disediakan panduan pemarkahan iaitu penerangan bagi setiap wakil huruf yang terlibat. Perlu diingatkan bahawa setiap jawapan anda perlu menunjukkan pendapat anda tentang alat bantu pendengaran yang sedang dipakai atau yang pernah dipakai.

Further modifications were also made to the rating scales to ensure all items were applicable (Table 4). Sentence structure revisions were recommended as well; for instance, the phrase "…yang paling kerap dipakai" was modified to "…yang pernah dipakai," and "…percakapan orang lain" was updated to "…percakapan orang yang paling kerap berkomunikasi dengan anda." These revisions aimed to make responses more specific. Another change was made to enhance comprehension: "betapa puaskah anda…" was revised to "adakah anda berpuas hati…" to improve clarity.

Table 4: Changes made to the rating scales of the SADL questionnaire

Original	First translation	Change made after content validation
Medium	Agak sederhana	Agak sedikit
Considerably	Baik	Agak sederhana
Greatly	Bagus	Sangat
Tremendously	Hebat	Amat sangat

Face validation

Face validators, who were laypeople aged 28 to 66, agreed on the organisation, appropriateness, and clarity of the translated questions. This validation group found the questionnaire easy to navigate and the language suitably adapted for the target audience. Face validation is a crucial step in questionnaire development, as it provides insight into how well the questionnaire can be understood and completed by hearing aid users, ensuring that items accurately reflect the intended constructs without ambiguity (Parsian & Dunning, 2009). Additionally, feedback from face validators helps identify potential issues with wording, cultural relevance, and layout, which are essential for optimising the questionnaire's usability and effectiveness in capturing meaningful data from respondents.

CONCLUSION

In this article, the translation and validation processes for the SADL questionnaire into Malay is presented. The meticulous procedure involved ensures that the Malay-SADL is a reliable tool for measuring satisfaction with hearing aids among the Malay-speaking population. The subscales available in this document provide both individual and composite satisfaction scores, offering a comprehensive view of the user experience. While the SADL has been widely translated and used internationally, further assessments with hearing aid users are recommended to refine its test-retest reliability and validity. These evaluations will strengthen its application and helps audiologists and providers tailor hearing aid services to better meet users' needs across diverse contexts.

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