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Amharic adaptation of the OHIP-14 and WHO oral health tools

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Abstract

Objective: To translate, culturally adapt, and preliminarily validate the English versions of the OHIP-14 and WHO Oral Health Assessment tools into Amharic for Ethiopian refugees in Aotearoa New Zealand. ***Methods:*** Following the five-stage cross-cultural adaptation framework proposed by Beaton *et al*. (2000), forward and backward translation, expert committee review, and pilot testing were conducted. Content validity was assessed by a bilingual panel using Likert-scale ratings and qualitative feedback. Face validity was evaluated through semi-structured interviews with five Amharic-speaking adults of Ethiopian refugee background. Quantitative data were analysed descriptively; qualitative feedback was thematically analysed. Cronbach's alpha assessed internal consistency. ***Results:*** The adapted tools showed strong semantic and cultural equivalence. Key changes included gender-neutral pronouns (እነሱ), culturally resonant expressions (e.g., "ሰዎች ምን ይሉኛል?" for "self-conscious"), and inclusion of traditional hygiene practices (mefakia, sintir, charcoal). Expert panel ratings confirmed clarity (M = 4.9), cultural appropriateness (M = 5.0), and semantic accuracy (M = 4.8). All OHIP-14 items scored ≥ 4 by participants, with mean clarity = 4.96 and cultural relevance = 5.0. Internal consistency was excellent (Cronbach's α = 0.90). Participants found the modified tools respectful, understandable, and reflective of their experiences. Qualitative data from post-completion semi-structured interviews further confirmed the clarity, cultural alignment, and emotional safety of the adapted tool. ***Conclusion:*** The Amharic OHIP-14 and WHO Oral Health Assessment tools demonstrated strong face and content validity. These findings support the value of culturally and linguistically adapted tools for equitable oral health assessment in refugee populations and provide a foundation for future large-scale validation.

Introduction

Oral health is a fundamental component of overall well-being, influencing nutrition, communication, social interaction, and quality of life (Slade, 1997). For refugee-background communities, oral health is particularly consequential, as experiences of displacement, interrupted access to care, and resettlement-related barriers can shape both oral health status and perceptions of well-being (Keboa *et al*., 2016). Oral health-related quality of life (OHRQoL) measures therefore rely on tools that are linguistically and culturally appropriate for the populations being assessed, particularly for refugee-background communities whose health beliefs and care-seeking behaviours may differ from those of other populations in the host country (Sousa & Rojjanasrirat, 2011).

In Aotearoa New Zealand (NZ), Ethiopians constitute a small but steadily growing refugee background community, with most arrivals since the early 2000s, and the most significant concentrations now in Auckland and Wellington (Stats NZ, 2018). Although Amharic is widely spoken within this community, no validated oral health assessment tools exist in this language. As a result, research involving Amharic-speaking populations remains limited, and the use of English-language instruments without appropriate cultural adaptation risks misinterpretation and measurement bias (Keboa *et al*., 2016).

Refugee-background populations may experience several barriers to oral health care, including financial constraints, limited service availability, language difficulties, and unfamiliarity with dental systems (Al Naasan *et al*., 2022; Al Naasan *et al*., 2024). Qualitative research by Al Naasan *et al*. (2024) highlights emotional and structural barriers to care, including high treatment costs, long waiting times, and mistrust in unfamiliar dental systems. For Ethiopian refugees in NZ, oral health perceptions may also be influenced by disrupted care pathways, experiences of trauma, and broader structural challenges associated with resettlement (Keboa *et al*., 2016). A trauma-informed and culturally responsive assessment approach is therefore essential to ensure that measurement tools reflect lived experience and avoid reinforcing stigma or exclusion (Al Naasan *et al*., 2022; Al Naasan *et al*., 2024).

The Oral Health Impact Profile (OHIP-14) and the World Health Organization (WHO) Oral Health Assessment questionnaire are internationally used instruments designed to capture functional, psychological, behavioural, and social dimensions of oral health (Slade, 1997; World Health Organization, 2013). As emphasised within the Beaton *et al*. framework, conceptual rather than literal equivalence is central to the adaptation of instruments across linguistic and cultural contexts (Beaton *et al*., 2000).

Accordingly, this study aimed to translate and culturally adapt the OHIP-14 and WHO Oral Health Assessment questionnaires into Amharic; evaluate their content validity through expert review; and assess face validity through pilot testing with Amharic-speaking adults of Ethiopian refugee background in NZ.

Methods

This study was conducted in Auckland, which hosts the largest Ethiopian refugee community in NZ. Ethical approval

was obtained from the Auckland University of Technology Ethics Committee (AUTEC; reference 25/85). All participants were provided with information sheets and offered the opportunity to ask questions before providing written informed consent.

The English OHIP-14 consists of 14 items grouped into seven domains: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability, and handicap, rated on a five-point Likert scale from 0 ("never") to 4 ("very often") to capture the frequency of oral health impacts (Slade, 1997). The WHO Oral Health Assessment Questionnaire for adults includes items on self-rated oral health, oral pain, toothbrushing frequency, use of toothpaste and other cleaning aids, sugar intake, tobacco use, and dental service utilisation (World Health Organization, 2013). In this study, the oral health behaviour and service-utilisation sections of the WHO questionnaire were used to contextualise OHRQoL responses, documenting participants' routine practices and access to care.

Following the guidelines for the cross-cultural adaptation of self-reported measures proposed by Beaton *et al*. (2000), the translation and adaptation process comprised five sequential stages. Stage I – Forward Translation, Stage II – Synthesis, Stage III – Backward Translation, and Stage IV – Expert Committee Review focused on translation and expert validation, while Stage V – Pre-testing focused on confirming the linguistic and cultural appropriateness of the Amharic versions of the OHIP-14 and WHO Oral Health Assessment tools for the target population (Figure 1; Beaton *et al*., 2000; Sousa & Rojjanasrirat, 2011).

Stage I – Forward Translation

Two independent bilingual speakers produced separate Amharic versions of the OHIP-14 and WHO Oral Health Assessment questionnaires. Participants were instructed to prioritise conceptual rather than literal equivalence and to use everyday Amharic phrasing designed to be easily understood by individuals with varying literacy levels (Beaton et al., 2000; Sousa & Rojjanasrirat, 2011).

Stage II – Synthesis

The two forward translations were compared and synthesised into a single reconciled draft through consensus discussion between the primary researcher, who is fluent in both Amharic and English, and the two independent bilingual speakers from Stage I. Discrepancies were resolved collaboratively to produce a linguistically coherent and culturally appropriate version for further testing (Beaton et al., 2000; Sousa & Rojjanasrirat, 2011).

Stage III – Back Translation

A third independent bilingual speaker, blinded to the original English versions, back-translated the reconciled Amharic draft into English. This step confirmed conceptual equivalence and identified any deviations or loss of meaning before expert review (Beaton et al., 2000; Sousa & Rojjanasrirat, 2011).

Stage IV – Expert Committee Review

An expert panel of three bilingual Amharic–English professionals (a community leader, an oral health practitioner, and a public-health researcher) independently assessed each item for clarity, cultural appropriateness, semantic accuracy, and potential sensitivity. Each OHIP-14 item was rated on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) to assess perceived clarity, cultural relevance, and natural phrasing (Beaton et al., 2000; Sullivan & Artino, 2013). Panel members reviewed the instruments individually before meeting collectively with

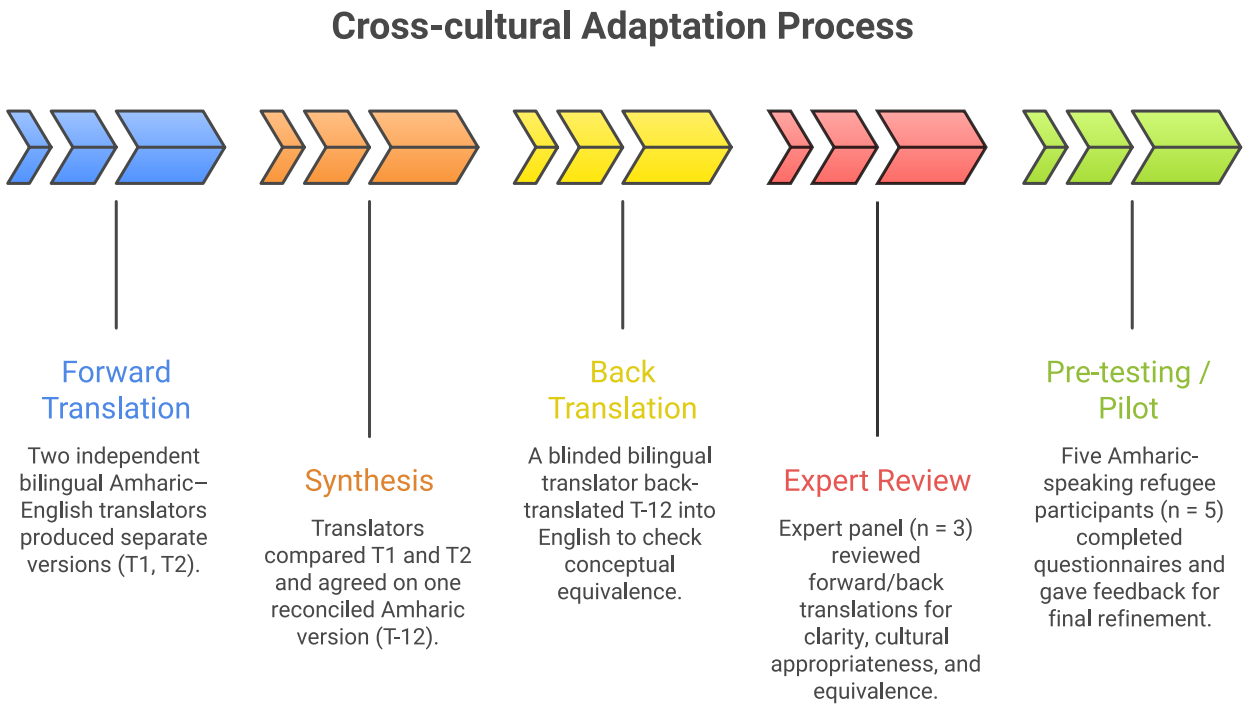

Figure 1. Process of translation and cross-cultural adaptation of the Amharic OHIP-14 and WHO Oral Health Assessment tools, following Beaton *et al*. (2000).

the primary researcher to discuss their evaluations and reach consensus on revisions. Feedback was collected using structured forms and later organised into themes to identify common patterns, such as simplifying complex expressions, removing potentially stigmatising terms, and ensuring natural phrasing consistent with Amharic social norms. Revisions were finalised through consensus to enhance linguistic precision and ensure that each item accurately represented the intent of the original English version (Beaton et al., 2000; Sousa & Rojjanasrirat, 2011).

Stage V – Pre-testing

Five Amharic-speaking adults (aged 28–65) of Ethiopian refugee background were recruited through community networks to evaluate the pre-final Amharic questionnaires. Inclusion criteria included fluency in Amharic, residence in NZ for at least 18 months, and willingness to provide detailed feedback on comprehension and cultural relevance. Participants completed the translated OHIP-14 and WHO Oral Health Assessment tools and subsequently participated in brief semi-structured interviews. Questions explored ease of understanding, clarity of wording, perceived respectfulness, and cultural resonance. Field notes summarised recurring themes, which informed final minor edits before pilot validation (Beaton et al., 2000; Sousa & Rojjanasrirat, 2011).

Scoring method and data analysis

The pre-final Amharic versions were used to evaluate clarity, comprehension, and conceptual alignment with the original English tools (Sousa & Rojjanasrirat, 2011). Descriptive statistics (mean ± standard deviation, SD) were calculated for each OHIP-14 domain to summarise item-level ratings and examine overall response consistency across participants. Internal consistency was assessed using Cronbach's α, which provides an estimate of how closely related the items are as a group, offering a preliminary indication of reliability within the pilot sample (Cronbach, 1951; Sousa & Rojjanasrirat, 2011).

The OHIP-14 items were analysed using an unweighted scoring approach, in which all items were assigned equal importance and summed to produce total and domain mean scores. This approach was selected because weighted scoring (where items are multiplied by severity-based coefficients; Slade, 1997) requires large, representative samples, beyond the scope of this exploratory pilot phase (Slade, 1997). The unweighted method, therefore, ensured transparency, cultural neutrality, and comparability with other early-stage cross-cultural adaptation studies (Beaton *et al*., 2000).

Qualitative data from the post-completion semi-structured interviews were analysed thematically, following an inductive approach to identify patterns related to readability, sensitivity, and cultural resonance. Codes were developed from participants' comments and grouped into themes that captured shared perceptions of linguistic and conceptual equivalence. Two researchers independently inductively coded participant feedback, and discrepancies were resolved through discussion to ensure analytical rigour (Sousa & Rojjanasrirat, 2011). Finally, quantitative and qualitative findings were triangulated to evaluate both content and face validity of the adapted Amharic OHIP-14 and WHO Oral Health Assessment tools (Beaton *et al*., 2000; Sousa & Rojjanasrirat, 2011).

Validation rationale and sample size justification

This pilot phase aimed to establish linguistic, cultural, and conceptual equivalence rather than full psychometric validation. The participant sample (n = 5) was therefore intentionally small, aligning with the methodological purpose of the Stage V (pre-testing) framework for cross-cultural adaptation (Beaton *et al*., 2000). At this stage, the focus is on detecting translation errors, resolving culturally ambiguous items, and confirming participant comprehension, rather than achieving statistical generalisation (Sousa & Rojjanasrirat, 2011).

While the small sample size limited the feasibility of conducting test–retest reliability, factor analysis, or construct validation, these procedures fall beyond the scope of an exploratory pilot study. Instead, emphasis was placed on face and content validity, verified through expert panel review and participant feedback, to ensure that the Amharic OHIP-14 and WHO Oral Health Assessment tools were clear, culturally relevant, and semantically consistent with their English counterparts (Beaton *et al*., 2000; Sousa & Rojjanasrirat, 2011).

Comparable early-stage adaptation studies, including the Danish (Gera *et al*., 2020) and Brazilian (Montero-Martín *et al*., 2009) versions of the OHIP-14, have employed similarly small pre-testing samples to refine language and cultural fit before proceeding to larger-scale psychometric testing. The current findings, therefore, serve as a foundation for subsequent planned validation using a larger, more diverse sample.

Results

Quantitative ratings and qualitative feedback were obtained from expert reviewers and pilot participants to assess the clarity, cultural appropriateness, and conceptual alignment of the Amharic versions of the OHIP-14 and WHO Oral Health Assessment tools. Results are presented for the forward–backward translation process, expert committee review (content validity), and pilot testing (face validity and preliminary quantitative evaluation).

Forward–backward translation outcomes

The forward–backward translation process identified several linguistic and cultural adaptations to the original English instruments. Gendered or potentially stigmatising expressions were revised to gender-neutral, culturally appropriate language. For example, gender-specific pronouns were replaced with እነሱ (inesu), a respectful collective pronoun in Amharic. The term "uneducated" was revised to "no formal education," and additional response categories for traditional and religious education were included.

Backward translation showed that these revisions retained the meaning of the original items. Overly formal or technical wording was simplified. Key OHIP-14 constructs, including "functional limitation," "psychological discomfort," "social disability," and "psychological disability," were expressed using commonly understood Amharic terms.

Expert panel (Content validity)

All OHIP-14 items received high ratings for clarity (M = 4.9), cultural appropriateness (M = 5.0), semantic accuracy (M = 4.8), sensitivity and non-stigmatising language (M = 4.9), and readiness for pilot testing (M = 5.0). Mean (M) scores represent the average of reviewers' Likert-scale ratings (1 = strongly disagree to 5 = strongly agree) across each evaluation domain.

Expert reviewers reported that item wording was generally clear and natural, with minor refinements suggested to simplify complex expressions. A summary of expert-panel ratings and suggested revisions is presented in Table 1.

Following expert review, specific wording changes were implemented to address clarity and sensitivity. References to traditional oral-care practices, including mefakia (cleaning stick), sintir (toothpick), and charcoal, were incorporated into relevant items. Terms perceived as potentially negative were revised, and wording related to dental pain was clarified to distinguish physical discomfort from emotional distress.

Pilot testing (Face validity and quantitative evaluation)

Five participants (aged 28–65 years; two females, three males; three United Nations quota refugees and two from the family-reunification pathway) completed the pilot testing. Four had at least secondary-level education, while one participant had traditional/religious education and had lived in NZ for more than four years. A summary of participant demographics is presented in Table 2.

Participants rated the Amharic OHIP-14 items highly for clarity (M = 5.0, SD = 0.2) and cultural relevance (M = 5.0, SD = 0.0). Item-level clarity scores ranged from 4.7 to 5.0. All items received ratings of ≥ 4 across participants.

Internal consistency of the OHIP-14 within the pilot sample, assessed using Cronbach's α, was 0.90. Quantitative analyses were conducted using Microsoft Excel for descriptive statistics and internal consistency estimation. Mean ratings for the Amharic OHIP-14 items are presented in Table 3. All items were rated 4 or higher by every participant.

Qualitative Insights from Pilot Participants

Participants provided qualitative feedback on clarity, comprehension, cultural relevance, and acceptability of the Amharic OHIP-14 and WHO Oral Health Assessment tools (Table 4). Thematic analysis identified three interrelated themes: clarity and comprehension, cultural congruence, and respect and emotional safety.

Table 1. Integrated summary of expert feedback on the Amharic OHIP-14 and WHO oral health tools

Expert panel evaluation (n = 3)	Domain / theme	Key findings	Example revisions or insights
	Clarity & comprehension	All items rated clear (M = 4.9 / 5)	Simplified complex phrasing; "clarified 'sense of taste worsened' to 'change in taste.'"
	Cultural appropriateness	Fully appropriate (M = 5.0 / 5)	Added traditional oral-care terms, mefakia, sintir, charcoal, lemon to complement "floss" and "mouthwash."
	Semantic precision	Equivalent to English items	"Self-conscious" replaced with "ሰዎች ምን ይሉኛል?" ("What would people say about me?") to capture social awareness.
	Avoidance of stigma	Sensitive, non-offensive language	"Completely useless" revised to "unable to work or function."
	Readiness for testing	All reviewers = "Yes"	Approved for pilot testing.

Note. Mean (M) values are presented to one decimal place; maximum possible score = 5.

Table 2. Demographic characteristics of pilot participants (n = 5)

Participant ID	Age range	Gender	Resettlement pathway	Years in NZ	Education level	Amharic proficiency
P1	28–35	Male	United Nations Quota refugee	6	Secondary	Fluent, standard Amharic
P2	36–45	Female	Family reunification	5	Tertiary	Fluent, standard Amharic
P3	46–55	Male	United Nations Quota refugee	7	Secondary	Fluent, standard Amharic
P4	56–65	Female	United Nations Quota refugee	10	Religious/ traditional	Fluent, standard Amharic
P5	28–35	Male	Family reunification	4	Tertiary	Fluent, standard Amharic

Table 3. Mean ratings for the Amharic OHIP-14 items (n = 5)

Evaluation category	Mean (± SD)	% ≥ 4	Summary
Clarity	5.0 ± 0.2	100 %	All items rated clear or very clear
Cultural Appropriateness	5.0 ± 0.0	100 %	Excellent cultural equivalence
Natural Flow	5.0 ± 0.0	100 %	Highly natural Amharic phrasing
Offensive Terms	Not applicable	0 %	No offensive wording identified

Note. Mean (M) values are presented to one decimal place. Percentages reflect the proportion of items rated ≥ 4.

Table 4. Summary of pilot participant feedback on the Amharic OHIP-14 and WHO oral health tools

Theme	Key findings	Example revisions or insights
Face Validity	Questionnaire perceived as clear, natural, and respectful	Participants related strongly to culturally familiar terms and examples.
Comprehension	No items reported as confusing	Phrased accessibly across literacy levels and generations.
Cultural Relevance	Traditional practices acknowledged	Inclusion of traditional/religious education, mefakia, and sintir resonated with older adults.
Acceptability	Highly acceptable across participants	No revisions recommended; participants endorsed future use.

Participants described the questionnaires as straightforward and easy to understand.

"It was easy to understand; nothing was confusing." *(P2)*

"The questions flowed well; they made sense straight away." *(P1)*

Culturally familiar practices were frequently referenced.

"I liked that it mentioned things we use, not just toothbrush and toothpaste." *(P4)*

"Including religious schooling shows you understand our background." *(P4)*

Participants also commented on the respectful tone of the wording.

"The words are polite; they make you feel considered." *(P3)*

WHO Oral Health Behaviour findings

Although oral health behaviours were not a primary outcome, responses to the WHO Behaviour items were examined as part of the face validity assessment. Four participants (80%) reported brushing twice daily. Three participants (60%) reported alternating between toothpaste and charcoal, and three participants (60%) reported using mefakia (traditional cleaning stick). One participant (20%) reported attending regular dental visits, and no participants reported tobacco use. These responses describe the range of practices reported by participants when completing the translated WHO items.

Summary of results

Across expert review and pilot testing, quantitative ratings for clarity, cultural appropriateness, and natural flow ranged from 4.7 to 5.0 (SD ≤ 0.16). Qualitative feedback indicated that the questionnaires were clear, culturally familiar, and acceptable to participants.

Discussion

This study translated, culturally adapted, and preliminarily validated Amharic versions of the OHIP-14 and WHO Oral Health Assessment tools for use among Ethiopians with refugee backgrounds in NZ. The findings indicate that the adapted instruments were clear, culturally resonant, and acceptable to participants, providing preliminary support for their suitability for further psychometric validation (Beaton *et al*., 2000; Slade, 1997; Sousa & Rojjanasrirat, 2011; World Health Organization, 2013).

The adaptation process followed internationally recognised frameworks for cross-cultural instrument development, ensuring semantic, idiomatic, experiential, and conceptual equivalence across languages (Beaton *et al*., 2000; Boateng *et al*., 2018; Gadeberg *et al*., 2017; Paisi *et al*., 2020; Wild *et al*., 2005). Iterative forward–backward translation and review by bilingual experts preserved the intent of the original instruments while allowing culturally meaningful refinements. Incorporating traditional oral health practices such as mefakia, sintir, and charcoal enhanced contextual relevance and helped to avoid Western-centric assumptions about oral hygiene behaviours, supporting accurate interpretation of items (Al-Ansari *et al*., 2020; FDI World Dental Federation, 2022; Sahile *et al*., 2023; Tefera *et al*., 2022).

The refugee context added further considerations for the adaptation process, as experiences of displacement and trauma can increase sensitivity to language and tone (Haddaway *et al*., 2022; Kasujja *et al*., 2022). The expert panel, therefore, adopted a trauma-informed perspective to avoid wording that might evoke shame or stigma. Terms with negative connotations, such as "ጥቅመቢስ (Tikmebis)" which suggests worthlessness, were replaced with neutral terms like "unable to function." "Dental pain" was clarified to refer explicitly to physical rather than emotional discomfort, and "uneducated" was rephrased as "no formal education," with additional categories introduced to recognise traditional and religious schooling (Lopez & Baelum, 2006; Sousa & Rojjanasrirat, 2011; Thomas & Harden, 2008). These adjustments demonstrate the importance of balancing linguistic accuracy with emotional safety and ethical considerations (Riggs *et al*., 2015). Without such modifications, direct translations of OHIP-14 constructs, especially those related to psychological distress, self-consciousness, or functional limitations, risk misinterpretation or causing unintended emotional harm. Both instruments required cultural and linguistic adaptation, although the WHO Oral Health Assessment tool involved fewer conceptual changes because the items focus primarily on behavioural practices and service use.

Community participation was central to the adaptation process. Refugee participants were engaged as active contributors to translation decisions and item refinement, ensuring that the instruments reflected both the original intent of the tools and the lived realities of Amharic-speaking communities (Beaton *et al*., 2000; Peres *et al*., 2019; Sousa & Rojjanasrirat, 2011; World Health Organization, 2024). Involving participants across age groups and educational backgrounds strengthened credibility and acceptability and helped bridge generational and linguistic differences (Gibbs *et al*., 2015; Kahukura, 2015; Karampatakis *et al*., 2021).

Several thematic challenges highlighted the importance of culturally grounded revision. For example, "self-conscious" was reframed as "ሰዎች ምን ይሉኛል?" ("What would people say about me?"), a common Ethiopian expression that reflects the collectivist orientation and social awareness

characteristic of Ethiopian culture. This phrasing captures how self-perception is shaped by communal judgment rather than individual evaluation. Similarly, "tense" was translated as "a feeling of stress and pressure" to convey psychological discomfort more accurately than a literal rendering (Beaton *et al*., 2000; Kasujja *et al*., 2022; Magwood *et al*., 2022; Sousa & Rojjanasrirat, 2011). These adjustments enhanced both conceptual clarity and emotional safety for participants.

The convergence of expert ratings and community feedback provided strong evidence of content and face validity for the adapted instruments. Internal consistency was excellent (Cronbach's $\alpha = 0.90$), aligning with reliability reported in other international OHIP-14 adaptations, including Brazilian ($\alpha = 0.94$), Spanish ($\alpha = 0.99$), and Danish ($\alpha = 0.88$) versions (Deshpande & Nawathe, 2015; Douglas-de-Oliveira & Chen, 2023; Gera *et al*., 2020; Montero-Martín *et al*., 2009). Participant-reported oral health behaviours, including reliance on traditional cleaning practices and limited engagement with preventive dental services, aligned with reported oral health impacts, further reinforcing the cultural sensitivity and conceptual validity of the adapted tools (Gizaw *et al*., 2024; Sahile *et al*., 2023; Tefera *et al*., 2022).

Beyond its methodological contribution, this study demonstrates how trauma-informed and community-driven adaptation processes can strengthen cultural safety and measurement validity in refugee health research. By centring linguistic respect, cultural identity, and lived experience, the adapted Amharic OHIP-14 and WHO tools provide a basis for future validation and more equitable assessment of oral health among resettled populations.

The main strength of this study lies in its participatory and culturally grounded methodology, integrating expert review with community engagement to enhance both methodological rigour and cultural authenticity (Beaton *et al*., 2000; Riggs *et al*., 2015; Sousa & Rojjanasrirat, 2011). The involvement of bilingual experts and refugee participants ensured that linguistic accuracy and lived experience informed every stage of the adaptation process. However, the pilot sample was intentionally small and suitable only for pre-testing, limiting assessment of psychometric properties beyond internal consistency. The absence of a global self-rated oral health item also constrained the evaluation of concurrent validity, and social desirability bias may have influenced responses during face-to-face feedback. Future validation should involve larger, more diverse samples and include additional validation measures to support broader application (Beaton *et al*., 2000; Wild *et al*., 2005).

Overall, this study demonstrates how trauma-informed and community-driven adaptation processes can strengthen cultural safety and measurement validity in refugee health research. The adapted Amharic OHIP-14 and WHO tools provide a foundation for future validation and for more equitable assessment of oral health-related quality of life among Amharic-speaking communities in NZ (Al Naasan *et al*., 2022; Al Naasan *et al*., 2024; Keboa *et al*., 2016).

Conclusion

The adapted Amharic versions of the OHIP-14 and WHO Oral Health Assessment tools demonstrated strong face and content validity, with expert and participant feedback confirming clarity, cultural relevance, and linguistic accuracy. These tools provide a foundation for future large-scale psychometric validation and for informing culturally responsive oral health services for Amharic-speaking communities in NZ.

Author contributions

Conception or design of the work – BK, KL, ZAN, HH, JT
Data collection – BK
Data analysis and interpretation – BK, KL, ZAN, HH, JT
Drafting the article – BK, KL, ZAN, HH, JT
Critical revision of the article – BK, KL, ZAN, HH, JT
Final approval of the version to be published – BK, KL, ZAN, HH, JT

Conflict of interest

The authors declare no conflicts of interest.

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Ethical approval

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