







RESEARCH ARTICLE

The impact of training on communication quality during interpreter-mediated cognitive assessments: Study protocol for a randomized controlled trial

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Abstract

Introduction: The number of Australian residents with dementia is projected to double by 2058, with 28% currently being migrants from non-Anglophone countries. There will be growing demand for professional interpreters for cognitive assessments and dementia-related health consultations in the future. Interpreting cognitive assessments can be challenging for interpreters; inaccurate interpreting can influence assessment outcomes. The Improving Interpreting for Dementia Assessments (MIND-SET) project will upskill interpreters through an online training course in dementia and cognitive assessments. The training has been co-designed with key stakeholders from the interpreting sector, dementia-related services, and family caregivers, and has been user-tested with 12 interpreters. The training aims to improve the quality of interpreter-mediated communication during cognitive assessments, and thereby improve the accuracy and acceptability of cognitive assessments with older people who have limited English proficiency.

Methods: We are conducting a single-blinded randomized controlled trial to evaluate the effectiveness of the training. We aim to enroll 150 interpreters, and allocate them to equal parallel groups. The intervention group will receive access to the MINDSET training, which comprises 4 hours of resources covering five domains: dementia knowledge, cross-cultural communication, briefings and debriefings, interpreting skills, and interpreting ethics. The control group will be assigned to a wait list, and will receive access to the training after the trial. Participants will be assessed according to the five domains, via the Dementia Knowledge and Assessment Scale, multiple-choice questions, video-simulated assessments, and ethical scenarios. Assessments will occur at baseline (prior to the intervention group completing the training), 3 months after enrollment, and 6 months after enrollment.

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Funding information

NHMRC, Grant/Award Number: 2005759

Results: The trial is ongoing. Recruitment began in June 2022.

Discussion: This is the first time a training resource for interpreters in dementia has been trialed. If successful it may represent a technologically innovative way to offer training to both trainee and practicing interpreters.

KEYWORDS

aphasia, cognitive assessment, communication barriers, dementia, interpreter training, interpreting, older people

Highlights

- Interpreters are crucial in facilitating cognitive assessments for allophone speakers.
- Interpreters would benefit from training to improve assessment accuracy.
- Our study has co-designed specialized dementia training for interpreters.
- This is a protocol to evaluate the training's efficacy in a randomized controlled trial.

1 | BACKGROUND

Similar to other Organization for Economic Co-Operation countries, such as the United States and United Kingdom, the proportion of residents aged 65 or over in Australia is both growing in size and becoming increasingly diverse.¹ While many older migrants have good English literacy, ~40% of Australian residents aged 75 years or older who speak a language other than English (LOTE) have limited English proficiency (LEP).² These older people often require language support from interpreters when accessing medical care, aged care, and other services.³ During diagnosis and treatment of dementia, interpreters play a crucial role. Given the effect of dementia on cognition and communication, assessment and diagnosis depends upon linguistic exchange between patients/clients and clinicians/assessors. Difficulties accessing interpreters can delay diagnoses of LEP older people, potentially delaying access to medical treatment and aged care.⁴ Similarly, cognitive assessments that are linguistically mediated poorly, for example, by an older person's family, may lead to misdiagnoses or suboptimal use of services.^{5,6}

Using professional interpreters rather than bilingual family members or friends is widely recommended because doing so facilitates greater accuracy, better communication, higher satisfaction from patient/clients and clinicians/assessors, and can avoid conflicts of interest.⁵⁻⁷ Current Australian clinical guidelines state that a professional interpreter should be used during cognitive assessments with an LEP older person.^{8,9} With the number of Australians with dementia projected to double by 2058 and 28% of people living with dementia being migrants from non-Anglophone countries,¹⁰ there will be growing demand for professional interpreters for cognitive assessments and dementia-related health consultations.¹¹ It is important that interpreters are adequately trained and resourced for this role.⁵

While using professional interpreters is always preferable, studies have shown that professional interpreters can influence outcomes of cognitive and mental health assessments, although the reasons are not well understood.¹²⁻¹⁵ Interpreters perform better when they are

briefed prior to an assessment, and are aware of the purpose of the interaction, familiar with assessment instruments, and able to anticipate any challenges with interpreting key vocabulary.^{16,17} Interpreting for cognitive assessments requires a high degree of linguistic accuracy. Interpreters must clearly and accurately convey assessment questions and instructions, as well as medical information to patients/clients. They should know translations for relevant medical terminology, and also be familiar with how commonly encountered conditions present.¹⁸ Interpreters must accurately render not only the content but also the form of patients/clients' speech during cognitive assessments, because features of speech such as hesitations, incomplete or misused words, repetitions, variations in tone or pace, and distorted meaning may indicate cognitive impairment.^{15,19} The interpreter should also be able to describe features of a patient/client's speech, and may be asked to by a clinician/assessor during a debriefing.^{16.}

Communication with cognitively impaired people can pose interactional challenges for interpreters. Attention to paralinguistic markers such as bodily gestures, facial expressions, and pace of speech can be key to supporting the person's comprehension and focus during the assessment.²⁰⁻²² A patient/client's discourse may include references, metaphors, vocalizations, or facial expressions that convey information about their cognitive processes or well-being in a culturally idiosyncratic way.¹⁷ Interpreters are required to convey their meaning to a clinician/assessor and provide relevant cultural context if needed. Some LEP patients/clients have low health literacy and require reassurance and support in understanding the purpose and process of undertaking a cognitive assessment. Clinicians/assessors and interpreters must work together to ensure a patient/client understands the purpose of the interaction and the respective role responsibilities.

In some cultures, symptoms of dementia and the language used to describe them can invoke stigma, fear, and shame.^{24,25} Interpreters must be alert to how their language may be interpreted, and if possible avoid using terms that could be considered pejorative. Alternatively, dementia symptoms may be downplayed and dismissed as normal aging. Health and care professionals may have strategies to facilitate

effective intercultural communication.²⁶ Interpreters must be able to linguistically mediate these strategies.

Generic interpreter training may not equip interpreters with the necessary skills to manage the complex demands of interpreting cognitive assessments, potentially leading to inaccurate assessments, miscommunication, and/or poor patient/client experience.^{15,21} Most professional interpreters in Australia have received training and have passed an examination to gain certification from the National Accreditation Authority for Translators and Interpreters (NAATI). However, prior to 2007, training was not a prerequisite to examination, and some professional interpreters still lack training. Specialized training has been shown to improve the quality of interpreters' performance in specific contexts in which a high standard of accuracy is required, such as in courtroom interpreting.²⁷ While hospitals in Australia often use specialized health-care interpreters of the widely spoken languages in their geographical location, other dementia-related services typically rely on community interpreters who are less likely to have specialized skills or training.^{11,28} Latter services include Aged Care Assessment Teams (ACAT), primary and community health providers, and aged care services. These services conduct dementia screenings for a variety of purposes, and depending on their geographical area, may work with large numbers of LEP patients/clients.

To support interpreters who work in dementia-related contexts, the MINDSET project (Improving Interpreting for Dementia Assessments) has developed a specialized online training package in dementia and cognitive assessments, designed specifically to address the needs of interpreters. The training focuses on one of the most common screening tools used in Australia, the Rowland Universal Dementia Assessment Scale (RUDAS), which is designed to be culture-fair and has been validated for use with non-English speaking multicultural patients/clients.²⁹⁻³¹ By upskilling interpreters, the training aims to increase cognitive assessment accuracy, improve patient/client experience, improve patients'/clients' experience during cognitive assessments, and reduce miscommunication between patients/clients and clinicians/assessors.^{6,22}

The training provided in this study targets both trained and untrained interpreters, as even trained interpreters are unlikely to have received specific instruction in the format and delivery of cognitive assessments. This training focuses on language interpreters for transposed or "migrant" languages in Australia. It does not encompass training for spoken language interpreters working in indigenous languages or sign language (English-Auslan) interpreters. The training components are likely, to a large part, to be relevant and of benefit to these two further groups of interpreters.

Prior to this study, there existed no such specialized training in Australia. The training has been co-designed with 23 stakeholders (interpreters, clinicians/assessors, and caregivers), and has undergone user testing with a group of 12 interpreters from six different languages. It addresses core components of quality health-care interpreting,^{32,33} with a specific focus on dementia and cognitive assessments. The training is designed to be accessible and engaging, and combines written text and instructional videos with links to key readings on external websites. The training encompasses five domains: dementia

RESEARCH IN CONTEXT

- 1. Systematic Review:** We undertook searches of PubMed, CINAHL, Scopus, and Web of Science using bespoke strategies for each database, combining keywords and subject terms (e.g., "dementia," "interpreter training," and "cognitive assessments"). We found no studies of training-based interventions to improve interpreter-mediated cognitive assessments. Studies of interpreter-mediated cognitive assessments have been appropriately cited.
- 2. Interpretation:** There is a growing demand for interpreters during cognitive assessments of older people who have limited English proficiency in Australia. Most interpreters, even those trained and certified, lack specific training for this. This trial evaluates an online training package for interpreters in dementia and cognitive assessments, using video-simulated assessments and knowledge-based questions.
- 3. Future Directions:** Our objective is to upskill interpreters in cognitive assessment and dementia knowledge to improve the accuracy, acceptability, and experience of cognitive assessments for older people from non-English speaking backgrounds. Online training is an accessible and low-cost option for both pre-certification trainees as well as post-certification practitioners in the form of professional development.

knowledge, cross-cultural communication, briefings and debriefings, interpreting skills, and interpreting ethics. Table 1 presents the MINDSET program logic, which outlines the learning outcomes, training content, and assessment measures corresponding to each domain.

2 | METHODS

This trial will evaluate the impact of the training on interpreters' knowledge and practice. The aim of the trial is to determine the effectiveness of the training in improving the quality of interpreter-mediated communication during a cognitive assessment, increasing interpreters' background knowledge about dementia, and supporting professional conduct.

We hypothesize the following:

1. Compared to the control group, interpreters who undertake the MINDSET training will have superior scoring when assessed on their knowledge of dementia and dementia-related services, cross-cultural awareness, intercultural communication, quality of interpreted communication, and applying interpreters' ethics at 3 months after receiving the training intervention.

TABLE 1 The MINDSET training program logic

	Learning outcomes	Assessment	z-Score weighting
Domain 1: Knowledge of dementia	Demonstrated knowledge of dementia, cognitive screening tools, dementia-related services, and person-centered care	Dementia Knowledge Assessment Scale (DKAS) (20 questions); six multiple-choice questions	15% (DKAS) 10% (multiple-choice questions)
Domain 2: Cross-cultural awareness	Awareness of cross-cultural issues and ability to perform/mediate effective cross-cultural communication	Three multiple-choice questions	5%
Domain 3: Briefings/debriefings/introductions	Understanding of pre-interactive briefings, introductions, and post-interactive debriefings	One drag-and-drop checklist	5%
Domain 4: Interpreting skills	Demonstrated competency and accuracy interpreting clinicians'/assessors' speech including assessment instructions. Competency and accuracy interpreting patient's/client's speech. Effective interactional management skills	One video-simulated interpreting assessment	50% (hurdle requirement) ^a
Domain 5: Ethical conduct	Demonstrated understanding of AUSIT ethical practice. Demonstrated understanding of how to apply AUSIT ethical principles of interpreting into practice	Two scenario-based questions	10%

^aIf this item is not attempted, the participant's total assessment score will be treated as missing data.

Abbreviations: AUSIT, Australian Institute of Interpreters and Translators; MINDSET, Improving Interpreting for Dementia Assessments project.

2. Compared to their baseline scores, interpreters who undertake the MINDSET training will have superior scoring when assessed on their knowledge of dementia and dementia-related services, cross-cultural awareness, intercultural communication, quality of interpreted communication, and applying interpreters' ethics at 3 months after receiving the training intervention.
3. Any benefits exhibited by the intervention group at the primary study endpoint of 3 months will still be exhibited at 6 months, demonstrating evidence of intervention sustainability.

2.1 | Design

The present study is a randomized controlled trial (RCT) in a parallel group design and an equal allocation ratio into intervention and control groups. It will assess the superiority of interpreter-mediated communication by interpreters who have received the MINDSET training compared to interpreters who have not received the training, with the primary endpoint set at 3 months after the intervention. Sustainability of any intervention effects will be assessed at 6 months. After completing a pre-enrollment survey, we aim to recruit 150 interpreters to be enrolled into either the intervention group ($n = 75$) or the control group ($n = 75$). Outcomes will be assessed at baseline (t_0), post-intervention (3 months after baseline; t_1), and follow-up (6 months after baseline; t_2). Table 2 provides an overview of the trial schedule.

2.2 | Setting

Participants will access the training and assessment implemented through an online platform called assessmentQ (Televic Education).

This platform has features specifically designed to train interpreters and is widely used in university courses and interpreter professional development around the world. Participants will be required to access this platform through a web browser on their own personal computers, which they can do from anywhere in Australia.

2.3 | Participants

Interpreters will be recruited for the trial through our interpreter industry partners, including NAATI, Australian Institute of Interpreters and Translators (AUSIT), the state of New South Wales' Health Interpreter service, and All Graduates Interpreting and Translation Services. Our partners will use internal mailing lists and social media to issue calls for expressions of interest with contact details of the research team. Upon enrollment, participants will undertake a short survey of key characteristic variables (age, sex, ethnicity, location, educational and economic attainments, and NAATI certification).

To be eligible, participants must:

1. Be NAATI Certified or Certified Provisional Interpreters;
2. Have ≥ 6 months experience as interpreters;
3. Have internet access;
4. Have access to a computer with a webcam and microphone;
5. Have not been involved in the co-design or user testing of the MINDSET training; and
6. Interpret for Greek, Italian, Mandarin, Cantonese, Arabic, or Vietnamese languages.

We selected these six languages because these are the top six languages other than English spoken by Australians aged 65 and over.³⁴

TABLE 2 Schedule of enrollment, interventions, and assessments

Timepoint	Enrollment	Baseline	Allocation	Close-out		t_x
		t_0		t_1	t_2	
ENROLLMENT:						
Eligibility screen	X					
Informed consent	X					
Allocation			X			
INTERVENTIONS:						
Intervention group				←		
Control group						
ASSESSMENTS:						
Demographic survey	X					X
DKAS		X		X	X	X
Multi-choice questions		X		X	X	X
Video simulation		X		X	X	X
Ethics scenarios		X		X	X	X

t_0 = before allocation, t_1 = 3 months after allocation, t_2 = 6 months after allocation.

Abbreviation: DKAS, Dementia Knowledge Assessment Scale.

2.4 | Interventions

All participants will undertake a baseline assessment on assessmentQ before being randomized into either the control or intervention group. The intervention group will be given access to the MINDSET training immediately after completing the baseline assessment, via new login credentials for assessmentQ. The training will take \approx 4 hours to complete, and can be completed intermittently and at the participant's own pace. The intervention group will be asked to complete the training within 3 months, prior to undertaking their second assessment. The control group will be placed on a wait list given access to the training after the trial's completion.

2.5 | Outcomes

Our primary outcome is the quality of interpreted communication measured via a battery composite z-score,³³ evaluating five interpreting domains crucial to communication quality: (1) knowledge of dementia and cognitive assessments, (2) cross-cultural communication, (3) briefings and debriefings, (4) interpreting skills for cognitive assessments, and (5) ability to apply ethical principles in the delivery of a cognitive assessment. These domains correspond to the five training modules, and will be measured using the following instruments: the Dementia Knowledge Assessment Scale (DKAS),^{35,36} multiple choice questions (nine per assessment), ethical scenario-based questions (two per assessment), and a video-simulated interpretation (one per assessment). Table 1 describes the different weightings assigned to outcome measures that compose the z-score. The video-simulated interpreting component is given the greatest weighting in the assessment and is a hurdle requirement, meaning that if participants do not com-

plete a video simulation, their total score for that assessment will be regarded as missing data. Consensus on weighting was reached by the research team, determined by the importance of each domain for overall interpreting quality.³²

2.6 | Sample size

We based our outcome measures and sample size calculations on a similar interpreter education study.³³ A sample size of 120 (60 test and 60 control) participants is sufficient to detect with 80% power and alpha of 0.05, a difference in control and test group means of 1.3 with standard deviation of 2.5 (i.e., means of 2.91 control and 4.21 test). The calculations are the customary ones based on normal distributions.³⁷ To account for \approx 25% participant dropout, we will aim to recruit 150 participants (75 test and 75 control).

2.7 | Recruitment

Our interpreting industry partners will issue a call for expressions of interest to community interpreters across Australia via mailing lists, social media, and direct contact. These organizations have contact with \approx 7500 Certified or Certified Provisional Interpreters nationwide.³⁸ Interpreters who are interested will be screened for eligibility by the project manager and required to complete signed written consent. Enrolled participants will then be provided with an account on the assessmentQ platform, through which they will access the training and assessment. The platform records users' access to the training. These data will be used to measure adherence, defining adherence as completing 70% of the training. The project manager will send regular

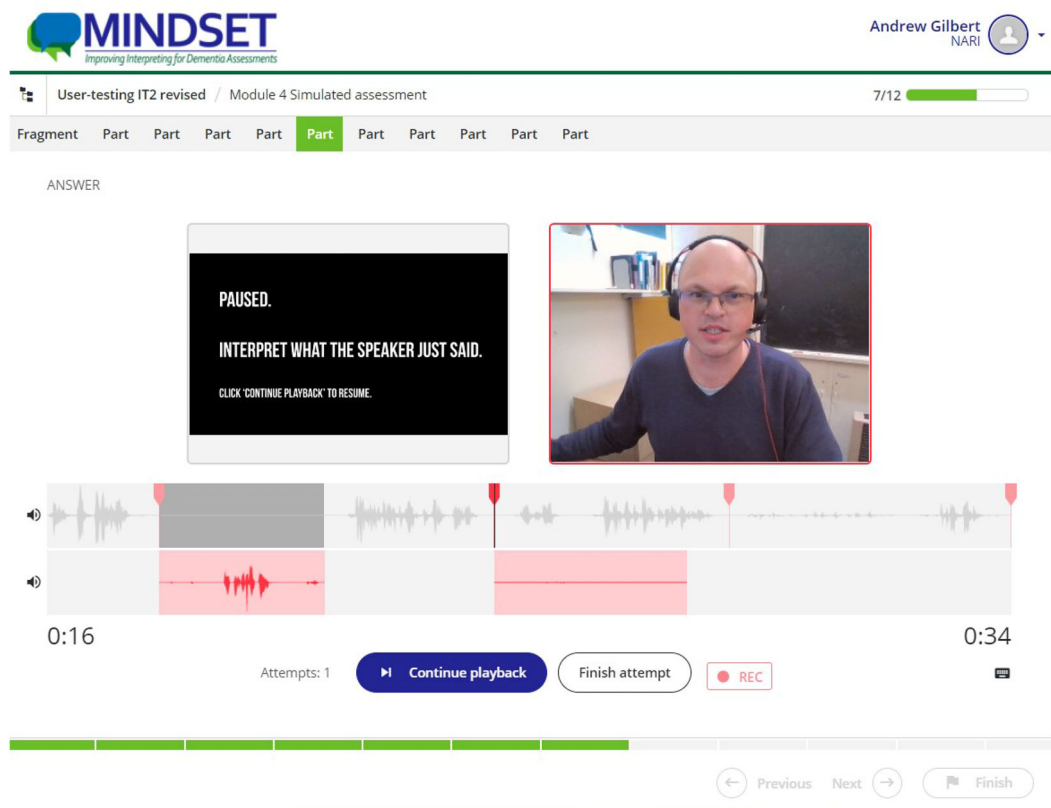


FIGURE 1 The video simulated assessment interface

project updates to all participants to maintain engagement. Participants' progress with training and assessment tasks will be monitored throughout the trial, and e-mail reminders will be sent to individual participants to complete tasks within allocated time periods if necessary.

2.8 | Group allocation

It is not possible to conceal group allocation from either the study or control groups. Therefore, this will be a single-blinded trial. Assignment will be based on an allocation sequence independently generated by a statistician through dynamic randomization using minimization.³⁹ Baseline outcome scores will be concealed from the statistician during allocation.

2.9 | Data collection and management

Each assessment will take ≈ 1 hour to complete. The DKAS was selected to assess interpreters' knowledge because it is a validated and widely recognized instrument.³⁵ Bespoke multiple choice and scenario-based questions have been written by the research team to specifically assess key content from the training. All bespoke questions have undergone face-validity review by a steering committee of 10 key stakeholders, and user testing by a pilot group of 12 interpreters (two per language). The DKAS and bespoke questions are all written in English. All assess-

ment outcomes will be entered into electronic spreadsheets stored on a secure server. Participants will not be identifiable from any data that is published or otherwise publicly released.

2.9.1 | Video-simulated assessment

Simulations have been used previously to assess interpreters' performance in interpreting studies, and offer a convenient way to grade interpreters on a range of practical measures. Participants will access the simulation via assessmentQ, where they will see a prerecorded video of a clinician/assessor performing a cognitive assessment of an older person using the RUDAS.³⁰ The simulation videos involve introductions and a full RUDAS cognitive screening. We have produced three different videos (each with different variations in the patients'/clients' responses) in each of the six languages, totaling 18 simulations. Each participant will receive a different simulation at each of the three assessment points, in a randomized order. The simulations contain break-points, which automatically pause the video and prompt participants to interpret the previous speaker's turn into the other language via their webcam and microphone. Figure 1 presents a screenshot of the assessment interface. Recordings will be saved to cloud-based storage. Twelve NAATI-qualified raters (two per language) will assess the recordings using the NAATI Certified Translator Test Assessment Rubric.⁴⁰ This scale-based instrument has been developed by NAATI for assessing certification. It is the industry-standard

measure of interpreters' performance in Australia, and has been designed to facilitate validity, reliability, and practicality in interpreter assessment. Participants' performance will be rated according to four competencies (meaning transfer skill, rhetorical skill, English proficiency, a LOTE proficiency), across five bands. The raters will be blinded to participants' allocation group. While testing for inter-rater reliability is advisable when using scale-based instruments, the different language profiles of each rater mean they are unable to compare their ratings of a single pilot simulation.

2.10 | Promoting retention and follow-up

Participants in both the intervention and control groups will be awarded Continuing Professional Development (CPD) points after completing all three trial assessments. These contribute to mandatory NAATI recertification requirements, which incentivizes enrollment until trial completion. The intervention group will be eligible for additional CPD points for complete the training. Control group participants will receive these additional points if they complete the training after completing the trial. Participants will be reminded to undertake each assessment via automated e-mails. The project manager will follow up directly with participants who do not complete assessments within the prescribed time period.

2.11 | Statistical analysis

To evaluate our primary outcome, we will use mixed effects generalized linear regression. Random effects will account for repeated measures from participating interpreters. Timepoint (baseline, 3 months, and 6 months) will be a categorical variable and specified as fixed. Other independent variables will be specified as fixed (intervention/control, age, sex, ethnicity, location, educational and economic attainments, and NAATI credential status). The main analysis will report the differences between the intervention/control groups. Additional subgroup analyses will investigate differences in groups defined by key characteristic variables.

Intention-to-treat analysis will be the primary analysis and includes all participants in the intervention group that were allocated even if they did not undertake the training. A secondary analysis will be a per protocol analysis, which will allocate participants to the intervention group only if they undertook training and others re-allocated into the control group. Missing data will be examined for patterns of missingness, and the approach to decide if multiple imputation is warranted will be followed as outlined here.⁴¹ If imputation is required, we will use multivariate imputation by chained equations.

2.12 | Oversight and monitoring

An implementation team, consisting of the principal investigator, the project manager, and any researchers involved directly in the collection and assessment of data will meet monthly during the course of this trial.

An executive committee, comprising the full research team, is responsible for implementation of the MINDSET project overall and all related activities and meets bimonthly. A project steering committee has also been formed, consisting of eight industry partners, two culturally and linguistically diverse consumers, two interpreters, the project manager, and the principal investigator. The industry partners are NAATI, AUSIT, All Graduates Interpreting and Translation Services, Translating and Interpreting Service (TIS National), New South Wales Health Care Interpreting Service, Dementia Australia, the Migrant and Refugee Health Partnership, and Televic. The steering committee meets biannually and provides oversight of the research program and guidance about the appropriateness and applicability of the intervention to industry, and ensures that the intervention aligns with concurrent and planned industry policy.

3 | DISCUSSION

To our knowledge, this is the first time that training designed to upskill interpreters in dementia and cognitive assessments will have undergone evaluation in a RCT. A number of studies have observed the influence that interpreters can have on the accuracy of cognitive assessments, and recommended training and resourcing to optimize interpreters' performance,^{13,15,22} yet the training has not undergone rigorous evaluation. To address this gap, we have partnered with key stakeholders in the interpreting and dementia care sectors to co-design an online training resource for interpreters. The use of an online training platform with the capacity to virtually simulate a cognitive screening, accessible via a web browser, is a novel development. This feature has only been recently implemented into assessmentQ, and up until now digitally simulated interpreter assessments required licensed software.

The importance of a co-design approach to our project aims needs emphasizing. Any training materials should be maximally relevant to their users, hence the importance of directly consulting with interpreters, care professionals, and LEP older people and caregivers during the training development process. Co-design is also important to ensure that training materials are pitched at an appropriate level for the interpreter workforce, and reflect that workforce's capacities and current gaps in specific knowledge and skills.⁴²

To integrate video simulations into our outcome measures, it was necessary to restrict this trial to interpreters of only six languages. Interpreters working in these languages comprise a large proportion of the Australian interpreter workforce. However, we recognize that other languages are often under-represented in the provision of interpreter and translator training. The MINDSET training resources are written in English and not language specific. If the training is shown to be effective during the trial, we plan to undertake an implementation phase and make this training available to every interpreter in Australia. Such a step is an important one to upskill interpreters who can then facilitate timely diagnosis for LEP people with dementia, and ultimately to reducing delayed dementia diagnosis in ethnically diverse communities.

ACKNOWLEDGMENTS

MINDSET has funding from several sources. The project received grant funding from NHMRC Partnership Projects 2020 (ID 2005759). Industry partners are providing funding and in-kind support. Contributing partners include: National Accreditation Authority for Translators and Interpreters (NAATI), Australian Institute of Interpreters and Translators (AUSIT), Dementia Australia, NSW Health Care Interpreting Service, All Graduates Interpreting and Translation Services, Translating and Translation and Interpreting Service (TIS National), Televic, and the Migrant and Refugee Health Partnership. All contributing partners are part of a biannual steering committee, which provides overall guidance and governance of the project. Contributing partners are not directly involved in the design of the trial; the collection, analysis, and interpretation of trial data; or in writing this protocol manuscript.

This study is registered with the Australian New Zealand Clinical Trials Registry (Trial ID: ACTRN12621001281886). Curtin University Research Ethics Committee has approved all aspects of this research (Reference: HRE2021-0477). All participants are required to provide written consent upon enrollment.

We acknowledge the valuable contributions of the interpreters, clinicians, and carers involved in co-designing and user-testing the MINDSET training.

CONFLICTS OF INTEREST

Bianca Brijnath is the Principal Investigator. Andrew Gilbert is Project Manager. Erika Gonzalez, Jim Hlavac, Joanne Enticott, Robyn Woodward-Kron, Dina LoGiudice, Lee-Fay Low, Josefina Antoniadis, Jenni White, Kerry Hwang, and Xiaoping Lin are members of the Executive Committee. The following organizations have contributed either financial or in-kind support to the MINDSET project: National Health and Medical Research Council (NHMRC), National Accreditation Authority for Translators and Interpreters (NAATI), Australian Institute of Interpreters and Translators (AUSIT), Dementia Australia, NSW Health Care Interpreting Service, All Graduates Interpreting and Translation Services, Translating and Translation and Interpreting Service (TIS National), Televic, and the Migrant and Refugee Health Partnership. Erika Gonzalez is National President of AUSIT. Lee-Fay Low has received the NHMRC Boosting Dementia Leadership Development Fellowship to support work on the MINDSET study, and has received other grant funding from Dementia Australia. Bianca Brijnath, Josefina Antoniadis, and Andrew Gilbert have received other grant funding from the NHMRC. All authors have no other relationships/activities/interests to disclose related to the content of this submission. Author disclosures are available in the [supporting information](#).

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Brijnath B, Gonzalez E, Hlavac J, et al. The impact of training on communication quality during interpreter-mediated cognitive assessments: Study protocol for a randomized controlled trial. *Alzheimer's Dement*. 2022;8:e12349. <https://doi.org/10.1002/trc2.12349>