

Co-design, implementation and evaluation of an SMS health messaging program in a very remote Aboriginal community in Australia

Josielli Comachio

josielli.comachio@sydney.edu.au

The University of Sydney

Nicki Newton

University of the Sunshine Coast

Vishnu Khanal

Charles Darwin University

Emily Saurman

The University of Sydney

Amy Von Huben

The University of Sydney

Clara Chow

The University of Sydney

Nadarajah Kangaharan

Northern Territory Health Services

Josie Povey

Charles Darwin University

Tamsin Cockayne

Northern Territory Health Services

Paul Burgess

Northern Territory Health Services

Meredith Makeham

The University of Sydney

Karina Coombes

Charles Darwin University

Alexandar Puruntatameri

Charles Darwin University

Keleasha Ogden

Northern Territory Health Services

Kureisha Wilson

Charles Darwin University

Sarah Norris

The University of Sydney

Michelle Dickson

The University of Sydney

Sean Taylor

University of Melbourne

Jeff Robson

Charles Darwin University

David Reeve

Aboriginal Medical Services Alliance Northern Territory (AMSANT)

David Edwards

The University of Sydney

Alison Lloyd

Northern Territory Primary Health Network

John Wakerman

Charles Darwin University

Deborah Russell

Charles Darwin University

Tim Shaw

The University of Sydney

Research Article

Keywords: Aboriginal and Torres Strait Islander health, mHealth, text messaging, remote communities, health promotion, community-based participatory research

Posted Date: June 24th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-9999252/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.
[Read Full License](#)

Additional Declarations: No competing interests reported.

Abstract

Background

Short Message Service (SMS) messaging has emerged as a low-cost and scalable approach to health promotion, particularly in rural and remote communities where access to health information and services may be limited.

Objectives

To co-design, implement, and evaluate an SMS health messaging program for Aboriginal people in a very remote Australian community.

Methods

From April 2023 to November 2025, a Developmental Evaluation approach was used to support the co-design, implementation, and refinement of an SMS health messaging program and a complementary website information hub. The study comprised three phases: (1) concept development, needs assessment, co-design, and pilot testing; (2) implementation and iterative refinement; and (3) evaluation. A mixed-methods evaluation was conducted. Qualitative data were collected through interviews and focus groups, while quantitative measures included message delivery rates, click-through rates, and participant retention.

Results

Forty-six participants completed a digital readiness survey, indicating stability of phone numbers (> 2 years, 48%) mobile phone ownership (73%), minimal device sharing (72%), and minimal privacy concerns (93%). Forty-two participants (24 female, 18 male) were enrolled in the SMS program. During implementation, 42 participants enrolled in the program and 54 unique messages were delivered, with a 94% successful delivery rate and no unsubscribe requests. Interviews (n = 13) and two group yarning sessions indicated high acceptability. Participants described messages as encouraging, culturally appropriate, and locally relevant, particularly those related to health check-ups and mental health.

Conclusion

SMS health messaging was acceptable and useful in a remote Aboriginal community. Co-design, cultural relevance, and community leadership were critical to engagement.

Background

Aboriginal and Torres Strait Islander communities in rural and remote areas draw on strong cultural knowledge, connection to Country, and community networks that actively support health and wellbeing[1]. While measurable improvements in health outcomes have occurred in recent years, important challenges remain for individuals, families, health professionals, and service providers. These are particularly evident in remote settings, where people continue to experience higher rates of illness and mortality compared with metropolitan populations[2]. Geographic and environmental factors such as long travel distances to access healthcare and other essential services introduce substantial time, financial, and logistical demands for communities.

At the same time, social and emotional wellbeing remains a central consideration in many remote contexts, interacting with broader health needs and service access. Chronic conditions, including cardiovascular disease, diabetes, kidney disease, and respiratory illness, continue to be key priorities[3]. These are shaped by a range of interconnected determinants, including housing, education, employment, and cultural context[3, 4]. Together, these factors highlight the importance of approaches that build on existing community strengths, support local capability, and enable ongoing, culturally responsive and accessible care.

Digital health technologies (DHTs) offer a promising opportunity to improve access to care, enhance continuity of services, and support the prevention and management of chronic conditions, particularly in rural and remote settings[5, 6]. Among these technologies, short message service (SMS) initiatives have gained considerable attention due to their broad reach, low cost, and scalability[7, 8]. As a simple and widely accessible tool, SMS enables the delivery of timely and tailored health information, behavioural prompts, reminders, and motivational messages that support individuals to adopt and maintain healthier behaviours[9].

A substantial body of evidence demonstrates that SMS-based health messaging program can improve physical activity levels[10], lifestyle changes, including diet, exercise, and personal hygiene[11, 12], medication adherence[13], and support reductions in harmful behaviours such as smoking[14] and excessive alcohol consumption[15]. Systematic reviews and meta-analyses across chronic disease management and prevention[16–19] consistently show modest but meaningful effects of SMS programs on behaviour change, particularly when messages are tailored, theory-informed, and delivered over sustained periods. For instance, a recent meta-analysis of seven RCTs found that participants receiving text messages were significantly more likely to quit smoking compared with participants in no/minimal intervention (risk ratio [RR] = 1.87, 95% CI 1.52 to 2.29, $p < 0.001$)[19]. However, despite their relevance and demonstrated effectiveness, questions remain about the transferability of these interventions to Aboriginal and Torres Strait Islander peoples living in remote and very remote areas, where health behaviours and access to care, and digital readiness are shaped by complex and interrelated factors, including cultural obligations, connection to Country, historical experiences of colonisation, service availability, workforce continuity, and digital infrastructure[2]. These contextual factors shape how health information is interpreted, trusted, and acted upon, and indicate that health programs proven effective in

urban or non-Indigenous populations cannot be assumed to transfer directly to remote settings without careful adaptation.

While SMS health messaging program offers a potentially scalable and low-cost approach to supporting health behaviours in areas with limited access to face-to-face services, their acceptability and impact depend on cultural relevance, language, timing, and alignment with community priorities[5]³. A strengths-based approach^{18 19} to programs such as SMS messages delivering health messages and evaluation with communities is essential to ensuring that SMS programs are culturally safe, locally relevant, and responsive to lived experience, fostering engagement, trust, ownership, and sustainable.

Therefore, this study aimed to co-design, implement and evaluate an SMS health messaging program with Aboriginal and Torres Strait Islander communities in a very remote setting.

Material and methods

Study design

We employed a mixed-methods study design following the principles of the Developmental Evaluation (DE) approach[20, 21] and the context of co-designed with Aboriginal and Torres Strait Islander communities. DE offers a strengths-based approach by centring local knowledge, lived experience, and community capabilities while supporting iterative adaptation. A developmental evaluation framework was selected to co-design, implement, and refine a new health intervention within a complex and rapidly changing remote Aboriginal community context. The framework supported continuous learning and adaptation by capturing stakeholder experiences, implementation challenges, and contextual influences throughout the project.

Reporting of this study follows the Good Reporting of a Mixed Methods Study (GRAMMS) checklist[22]. In addition, the qualitative component is reported in accordance with the Standards for Reporting Qualitative Research (SRQR) for overall reporting and the Consolidated Criteria for Reporting Qualitative Research (COREQ)[23] to ensure transparency, rigour, and completeness. This study was also reported in accordance with the CONSIDER[24] statement for strengthening the reporting of health research involving Indigenous Peoples.

The SMS program was designed using an iterative process that combined co-design principles, pilot testing, and real-world implementation, followed by process and outcome evaluation. The description of activities conducted in each phase is presented in Fig. 1.

Human Research Ethics Approval

This study forms one arm of a broader, multi-component research project. The protocol has been published elsewhere[25]. The overarching project was reviewed and approved by the Human Research

Ethics Committee of the Northern Territory Department of Health and Menzies School of Health Research (NT HREC Approval Number: 2022–4275). Administrative approval was also obtained from the Research Governance Office, NT Health (EFILE2023/8720), and a permit to conduct research was provided by the relevant Land Council.

This research was conducted in accordance with the National Health and Medical Research Council (NHMRC) guidelines for ethical conduct in research with Aboriginal and Torres Strait Islander Peoples and communities (2018), in addition to the National Statement on Ethical Conduct in Human Research.

Reflexivity of the evaluation team

As with all research conducted by multidisciplinary teams, it is necessary to recognise the contextual, professional and personal perspectives that may shape interpretation. The development and evaluation of the SMS program were undertaken in part by four non-Indigenous researchers based in metropolitan settings (TS, NN, and JC), and regional (VK) with limited lived or clinical experience in remote NT contexts. The team's expertise spans digital health, health systems research, human factors and implementation science, which inevitably informed analytical framing and interpretation.

In recognition of these positional influences, the researchers undertook multiple visits to the community and engaged directly with community-based researchers and leaders throughout the project. Reflexive practices were embedded across the development and evaluation process, including structured reflexive journaling, iterative individual and the whole team-based review (JC, TS, NN, ES, VK, DR, KC, AP, and KW). Indigenous stakeholders and community representatives contributed to the study through consultation and feedback on the interpretation of findings. Their perspectives informed the analytical process and helped ensure that the findings reflected community priorities and local contexts.

Community partnerships

The study adhered to Indigenous ethical guidelines and approval processes relevant to all participating communities and organisations. Ethics approval was sought through appropriate institutional and Indigenous-specific ethics pathways in the NT, including regional and/or jurisdictional Aboriginal ethics review where required. The project followed local governance processes, including consultation community representatives. Community-based researchers and/or Aboriginal partner organisations supported culturally appropriate engagement, participant communication, and local interpretation of findings. The research team includes members with experience in Indigenous health (VK, DR, MD, DE, NK), remote health systems (ES, JP, TC, PB, KO, AL, JW, DR, NK, MM, JR) community-based research (AP, KC, KW, KO), digital health (JC, TS, SN, AVH, NN, CC), and ethical research methodology used with Aboriginal and Torres Strait Islander communities (VK, DR). Where additional cultural, community, or methodological expertise is required, the team sought guidance from Indigenous partners (KC, AP, KW, KO), local organisations to ensure the research is conducted in a culturally safe and accountable way.

Capacity building or local workforce involvement

Community-based Aboriginal researchers (KC, AP) were employed through the project and support the development of the project, data collection and interpretation of finding. In addition of ongoing consultations, training was also provided to community-based Aboriginal researchers to support their involvement in the project.

Data collection

Phase One

Concept development and needs assessment

This phase involved program planning activities (ie., duration of the program, recruitment planning) and co-design process undertaken with key stakeholders, including general practitioners, specialists' community-based researchers, digital health researchers, and an Aboriginal Health Practitioner (AHP) to brainstorm the SMS development and delivery. The purpose of this phase was to inform the design, content, delivery approach, and cultural appropriateness of the SMS program for remote Aboriginal communities. Data sources comprised routine project materials such as meeting minutes, field notes, and notes from stakeholder discussions, which were documented as part of standard SMS development processes.

Early identification of priorities and program requirements was undertaken at the outset of the project[6, 25, 26], ensuring that the SMS program was grounded in locally relevant health needs, service delivery realities, and community perspectives. These early-stage insights informed key design decisions, including target behaviours, message objectives, delivery mechanisms, and alignment with existing care pathways. Documented materials were reviewed iteratively using qualitative content analysis to identify core themes, assumptions, and design considerations. This process supported transparent documentation of program development and ensured that decisions were traceable and responsive to stakeholder input.

In addition, a structured survey was administered to participants at the implementation site to assess mobile phone access, digital stability, privacy concerns, and preferences for receiving health information via SMS. Inclusion criteria were age (≥ 18 years) and current ownership of a mobile phone. Demographic items captured gender, age in years, and primary language spoken at home.

Co-design

A set of SMS messages was initially developed by the third-party partner Digicuris (<https://digicuris.com>) within the Westmead Applied Research Centre (WARC), Australia, drawing from existing banks of messages used in prior programs (can refer to published WARC SMSA studies) [7, 14]. Co-design methodology was then employed to refine the SMS program content and delivery model[6]⁴.

Three hybrid consultation and co-design workshops were conducted in April 2024 with key stakeholders involved in remote healthcare delivery and digital health implementation (n = 10). Participants included local community leaders (n = 2), researchers with expertise in digital health and implementation science (n = 3), clinicians involved in chronic disease management and primary care delivery (n = 3), and local Aboriginal Health Practitioners (AHPs) (n = 2). The workshops were delivered using a hybrid format to enable participation from both locally based and geographically dispersed stakeholders.

The workshops aimed to collaboratively inform the development of the SMS program and ensure that the intervention was clinically relevant, culturally appropriate, and aligned with community priorities. Discussions focused on identifying priority health topics for SMS delivery, preferred communication styles, culturally appropriate wording, message tone, frequency and timing of message delivery, literacy considerations, and potential barriers to engagement with digital health technologies. Stakeholders also discussed issues related to trust, privacy, acceptability, and the role of SMS messaging in supporting ongoing healthcare engagement in remote communities.

Community leaders and AHPs played a central role in guiding the cultural appropriateness of the intervention, including the use of respectful and locally meaningful language, the avoidance of deficit-focused messaging, and consideration of community communication norms. Clinicians contributed to the clinical accuracy and practical relevance of message content, while researchers supported discussions regarding implementation feasibility and program delivery. Feedback generated through the workshops directly informed the iterative refinement and tailoring of SMS messages to better reflect local language preferences, cultural values, health priorities, and community contexts. A key outcome of the co-design process was the strong emphasis placed on adopting a strengths-based approach throughout the program.

Pilot Testing

Given the volume of content and the importance of contextual tailoring, a pilot of 10 messages, delivered over 3 weeks, were conducted to test feasibility and acceptability before implementation of the SMS program with a group of volunteer participants (n = 10) using convenient sampling[27]. The pilot involved 7 community members (three women and four men) supported by community-based researchers, who were interviewed during the fourth and final week of receiving messages.

A subset of messages covering culture and local activities, general health, smoking, mental health and cardiovascular health was selected to cover a broad range of topics identified as important to community and delivered in 4 weeks, with approximately five messages being sent per week to community members delivered by our partner Digicuris (<https://digicuris.com>) (Supplementary File 1). Following completion of the pilot program, participants were invited to take part in either a focus group or a one-to-one interview. Data collection was conducted using a yarning method[28] led by Aboriginal community-based researchers (KC or AP) and non-Aboriginal researchers known to the community (TS, NN). Eligibility criteria included community members who owned a mobile phone, were aged (≥ 18 years), and were able to read.

In addition, a website information hub was developed specifically for the community involved in the study as part of the SMS program. The website functioned as an adjunct to the SMS program, providing a centralised platform where participants could access the same links sent via SMS, reinforce message content, and engage with resources in a more flexible format.

Phase Two: Implementation

Following concept development, co-design, piloting and refinement (Phase 1), the SMS program was implemented on 9 July 2025. The SMS program was implemented in a remote community to assess feasibility and inform optimisation for potential scale-up. The community is a remote Aboriginal community (Modified Monash Model category 7) in the NT. The community has an estimated population of around 317 people. Services include a primary healthcare clinic, school, local council services, art centre, and airstrip. Access is typically by light aircraft or ferry.

SMS messages were delivered according to a predefined schedule, with participants receiving three messages per week over 12 weeks, as informed by the development phase. Additional health messages were sent out via the platform to inform participants about available local health and community services and visiting services. Implementation fidelity was monitored throughout the program period, using indicators system functionality, message delivery, and participant engagement, that were collected via Digicuris and supplemented with qualitative data throughout the program to ensure consistent program delivery.

Participants were recruited locally by community-based researchers (KC and AP) using culturally appropriate approaches (e.g., face-to-face invitation and opportunistic recruitment during community activities) and convenience sampling[29]. Interested community members were provided with plain-language study information and were offered the option to discuss questions with a community-based researcher or a senior researcher who has a long-term relationship with the community (TS). Written consent was obtained prior to all interviews and surveys. During enrolment, participant contact details were confirmed and recorded, including preferred name and phone number. Participants were informed that they could opt out at any time by replying “STOP” (or an equivalent process appropriate to the SMS platform used). Eligibility criteria followed the same process as described in the early phases.

Site selection for the SMS pilot

The study was conducted in remote Aboriginal communities in the NT. The community was selected based on expression of interest, and criteria such as their geographic remoteness, existing partnerships with local health services and community organisations, community interest in participating, and the relevance of the study objectives to local health priorities. Selection was also informed by the feasibility of implementing and evaluating the intervention within the community setting, including local infrastructure, stakeholder support, and opportunities for community engagement. existing partnerships with local health services and community organisations, community interest in participating, and the relevance of the study objectives to local health priorities[25]. Aboriginal community with a population of approximately 300 people.

Phase three: Evaluation

At the end of the implementation period, participants were invited to provide feedback on acceptability, perceived usefulness, and suggestions for improvement via a culturally appropriate qualitative approach (e.g., yarning-style focus groups or one-to-one interviews)[28, 30]. Implementation outcomes (such as feasibility, fidelity, reach, and practical barriers) were synthesised alongside participant feedback to inform refinements to content, scheduling, recruitment processes, and operational workflows for future delivery. In addition, quantitative data included digital readiness and SMS analytics, as described in the early phases, were made part of the evaluation process.

Participants who took part in the short survey and qualitative interviews were offered recompense in the form of a AU\$50 gift card to compensate for their time and contribution²⁸. Participants were informed that they could withdraw from receiving SMS, survey or interviews at any time without penalty.

Data Analysis

Quantitative analysis

The digital readiness survey was developed and administered using Qualtrics to assess mobile phone use at the implementation site and participants' readiness to receive SMS-based communications. Community-based Aboriginal researchers conducted in-person surveys and completed responses in Qualtrics using Tablets. Survey data were analysed using descriptive statistics, with results summarised as frequencies and percentages using Microsoft Excel. Quantitative data were generated from the Digicuris platform available analytics and the website. For the website, metrics included: country, most visited pages by session, average time spend and device used.

Qualitative analysis

Semi-structured interviews using yarning methods were conducted before implementation to inform the SMS program, following the initial pilot, and after implementation with participants in the SMS program. Transcripts were analysed using thematic analysis[31] and using NVivo 15 software[32]. Initial coding was guided by the three research questions, with open coding used to identify additional themes within and across participants' responses. Qualitative data from interviews were analysed and interpreted to provide an in-depth understanding of the factors that influence engagement by one independent researcher (JC) and cross-checked by a second reviewer (TS). To enhance the cultural relevance and credibility of the findings, Indigenous stakeholders were invited to review and provide feedback on the emerging themes.

Sources of data were triangulated to build a comprehensive, contextualised perspective and integrated understanding of the project's development, implementation and evaluation. In addition, a 'Word cloud' was generated for a visual representation of word frequency derived from the interview transcripts.

Results

The SMS program was developed and implemented between May 2023 and November 2025, achieving a 94% message delivery success rate.

Phase 1 results

The co-design process generated a set of contextually relevant design principles and program components for the SMS-based health messaging program, and accompanying website information hub. Engagement with clinicians, community-based researchers, digital health researchers, a Traditional Owner in the community and an Aboriginal Health Practitioner (AHP) ensured that the program was grounded in local priorities, cultural strengths, and existing service structures. Participants expressed that the SMS messages were liked and welcomed, describing them as positive reminders to prioritise their health. The messages were perceived to encourage reflection on healthy behaviours and were seen as a prompt to think about wellbeing more generally. Participants reported particularly appreciating the strength-based messages relating to local hunting or participation in sports. While some participants noted that certain messages (e.g., those about smoking or soft drinks) were not personally relevant for them, they emphasised their value for others in the community, reflecting the collective nature of local culture. Community feedback within several areas for improvement is presented in box 1.

Box 1. Community preliminary feedback on SMS messages.

- Trust in messaging: Including links from trusted sources such as government and local organisations helped build credibility and encourage engagement. Some participants were unaware that the links were clickable, so an explicit prompt (e.g., *“Click the link to find out more”*) was added.
- Frequency and number of messages: Adjust to approximately three messages per week.
- Introduction message: Include details about who the messages are from, clarify that recipients don't need to reply, and encourage sharing information with family and friends.
- Language and cultural identity: Incorporate local language to signal cultural ownership and strengthen connection.
- Timing: Send messages in the morning, particularly when visiting services are in town.
- Prioritised messaging: Additional content priorities identified included hygiene and seasonal topics (e.g., snake bites, melioidosis), chronic conditions (diabetes, heart health, kidney disease), mental health resources, and reminders about visiting services, appointments, medication adherence, and local opportunities.

Refinements were made based on community feedback, including simplifying language, adjusting message timing to avoid early mornings, and adding locally relevant examples. A number of sessions were held with a community elder who was acknowledged as a keeper of local language to incorporate local language words in the question set. This was to both make the question sets locally relevant as well as encourage community members to use local language. Examples of program messages were reported in Table 1.

Table 1
Examples of program messages.

Cultural	<i>“Api” - speaking and sharing our language keeps our culture strong and connects us to our ancestors. Use your language every day - it keeps our spirit and mob strong!</i> <i>“Api ninkayi” - good health means caring for your body, mind, and spirit. Things like staying active, yarning with family, painting, and connecting to culture all help keep you strong. Click on this link for more tips</i> https://strongspiritstrongmind.com.au/mental-health/ The [name] Tigers want to be premiers again! Getting young ones into sport is great for keeping their mind and bodies strong. Spending time on Country, like fishing or hunting, can lift your spirit and keep your mind strong. Make choices today that help you feel better tomorrow.
Alcohol & other drugs	Feeling down? Alcohol might seem like it helps, but it can leave you feeling worse the next day. Keep your spirit strong by choosing healthy ways to cope, like yarning with a mate or spending time on Country.
Doctors in town	Are you having trouble with your teeth? Did you know the Dentists are here from 28 July to 1 August 2025 – why not visit the clinic? Are you having trouble with your foot? Did you know the Foot Doctors (Podiatrists) are here on 13 August 2025– why not visit the clinic now?
Chronic disease (kidney disease)	<i>“Ngarratu” - kidneys work hard to keep you healthy, but they can get sick without warning. Your health is important - visit the clinic for a check-up and click on the link to learn more</i> https://assets.kidney.org.au/resources/KHA-First-Nations-Flipchart.pdf
Mental Health	<i>“Api” - looking after our mental health is important to keep us happy and strong. When you’re not good, see the clinic, yarn with mates or call 13 YARN (13 9276). 13 YARN is run by and for mob</i> https://www.13yarn.org.au/
Diet and exercise	[Participant name], you have the power to keep your heart healthy every day! Eating healthy foods, staying active and avoiding smoking and grog all make a big difference. Learn more here: https://www.heartfoundation.org.au/healthy-living/keeping-your-heart-healthy <i>“Api” - a can of soft drink has 10 teaspoons of sugar in it. Swap it for a diet drink or water next time - even this little change can make a big difference!</i>

Digital readiness results

A total of 46 participants completed the survey about digital usage in the community. Of these, 32 identified as female (69.6%) and 14 as male (30.4%). Participants ranged in age from 18 to 65 years and older. Two participants were aged 18–24 years (4.3%), 22 were aged 25–44 years (47.8%), 21 were aged 45–64 years (45.7%), and one participant was aged 65 years or older (2.2%). The results of the digital readiness assessment are presented in Table 2.

Table 2
Mobile phone usage in the implementation site (n = 46).

Survey Question	N = 46 (%)
1. Length of time with current phone number	
< 1 month	2 (4%)
1–3 months	4 (8%)
3–12 months	2 (4%)
1–2 years	16 (35%)
> 2 years	22 (48%)
2. Length of time with current device	
< 1 month	2 (4%)
1–3 months	6 (13%)
3–12 months	3 (6%)
1–2 years	19 (41%)
> 2 years	16 (35%)
3. Who do you share your mobile with?*	
Just me	33 (72%)
2 people	11 (24%)
3 people	1 (2%)
> 3 people	1 (2%)
4. Privacy concern level	
Not worried	43 (93%)
Neutral	1 (2%)
Somewhat worried	2 (4%)
Very worried	0

*For those who reported sharing the mobile, 8 reported sharing with a family member, 2 explicitly reported sharing with a partner, and 3 reported “others”.

- Eight participants reported having owned their current mobile phone for less than 12 months (Q1) for multiple reasons, such as the device being broken 3 (37.5%), the device being lost/SIM card 3 (37.5%), connectivity was better with the new provider 1 (12.5%) or damage the SIM card 1 (12.5%).

- Participation and engagement metrics from website and SMS platform (Digicuris) were provided in the Supplementary File 2.

Qualitative evaluation of the SMS program

Fifteen enrolled participants (out of 42 enrolled in the program) accepted to be interviewed for the SMS program (individual interviews $n = 13$; FGD/group yarning sessions = 2), age range from 34 to 64 years, consisting of 8 females and 7 males. Participants offered detailed insights into how community members engage with mobile messaging as a health communication tool.

Overall, the messages were well received, with many participants noting that they were timely, useful, and easy to understand. To visually summarise the most common words and expressions used by participants when describing their experience with the SMS program, a word cloud was generated. The size of each word reflects its frequency in the feedback, highlighting dominant perceptions such as “Good,” “Helpful,” “Important,” and “Reminder for us” (Fig. 3).

Frequency of delivery messages

The frequency of messages (i.e. 3 messages per week) was acceptable to most ($n = 9/15$). However, feedback on the frequency of receiving SMS varied during the interview: one participant preferred receiving messages once a month, one suggested once a week, and two preferred three to five messages per week.

Most helpful message types:

Participants described the SMS content as helpful, relevant, and supportive. Messages about heat, hydration, medications, clinic visits for health check-ups, and mental health were particularly valued. The SMS messages appeared to prompt changes in health behaviour, with some adjusting daily habits after reading the messages. Two participants reported sharing the SMS message with family or friends.

“I started drinking more water because of the text. Sometimes I forget and drink too many soft drinks, so the messages remind me... You think it is, if you read about that, change it in a way, you're like, oh, damn it. I need to drink some water today.” (Participant 2, Female, 30 years)

“The message about tablets [medication] was really helpful for me. Yeah, really. You should really [have that]. Because we forget tablets as well.” (Participant 12, Male, 60 years)

“I started receiving them in the second week. It was good because, you know, when I was going through some mental health issues, weirdly, some of the messages came at the right time when I really needed them. I could relate to those messages.” (Participant 9, Female, 48 years)

“Yes. It's really good, and it's good to have those reminders because sometimes we forget. And it's important that you know, we go to the clinic, get checked up, check all the things, you know, and exercise.

And like mental health as well – like, you know, make sure that we gather with family and friends a lot, you know?” (Participant 6, Female, 48 years)

“I talk to my family all the time my mum and my sister, and my children as well. So, we do talk about it, you know. And it’s important too because we don’t have much awareness. That’s something that helps us, and it is very helpful.” (Participant 6, Female, 48 years)

Observed and reported limitations with the SMS program

Participants identified barriers that affected how they engaged with the SMS messages. Many expressed that link-based messages felt risky due to scam exposure, noting that messages containing links felt unsafe and were often ignored. There were also low revisit rates, with most participants reading messages only once and not returning to them later or sharing them with others. Two participants also described vision impairment, which made it difficult to read longer or more complex messages without assistance. For the website, there was very low engagement from the community, with 12 participants either unaware of it, unsure how to navigate it, or reluctant to open links that looked unfamiliar.

“Too many scam messages come to my phone, so I don’t trust links.” (Participant 05, Female, 60 years)

“[Referring to the links sent to access resources] Did you access the link? Did you click it? Participant 1: No. I don’t think so. I am scared to click.” (Participant 3, Female, 60 years)

“Yeah. It’s a bit hard to read. But one of my family members will read the message for me.” (Participant 12, Male, 57 years)

Future opportunities

Future opportunities were discussed during the interview. There were four topics that participants consistently suggested (explicitly or implicitly) for maintaining or incorporating into future messaging.

Weather and safety alerts

“Like reminding families to go to the clinic and pick up medications before a cyclone. If power goes off, the clinic might close.” (Participant 9, Female, 48 years)

Community activities and wellbeing programs

“Tell us when the walking group starts again. [Participant referring to potential programs in the community].” (Participant 6, Female, 48 years)

“Let us know about football, barbecues, and ceremonies.” (Focus group, participant 15, male, 32 years)

“Yeah, we’ve got to keep our culture alive, and, you know, our elders... were on, you know, we’ve got to keep that legacy going. What the old people left behind, and we have to keep that legacy going. Yeah. Don’t let the legacy die out.” (Focus group, participant 14, male, 64 years)

More mental health content

Key topics identified through co-design included stress management, experiences of bullying, and the importance of talking with family members and Elders about health, behaviours, and broader wellbeing. Participants also highlighted the value of practical calming strategies (e.g., meditation techniques or links to guided resources) and clear, supportive guidance on what to do when feeling overwhelmed.

"With mental health, it gets out where people, you know... I mean, we all go through that. It's good that we help family, just to be in that mindset – that you have family there to keep support. And culture is very important. You know, participating in that – dancing, singing, attending our ceremonies and stuff like that. And it's good for everyone, because the older mob are going now, you know, and the younger mob need to continue, to pass it on to the next generation." (Participant 6, Female, 48 years)

"Bullying. bullying. Here's another thing, because, you know, you have kids these days... This starts from any social media. Social, yeah." (Focus group, participant 15, male, 32 years)

"Meditation would be good. People need alternatives to manage stress." (Participant 9, Female, 48 years)

Immunisation reminders

Particularly for parents of young children and adolescents' reminders are important. (Focus group and participant 9, Female).

"Reminders for immunisations for kids. One girl I'm looking after is 16 and hasn't had her immunisations since she was 12." (Participant 9, Female, 48 years)

Discussion

This study demonstrates that a co-designed, culturally grounded SMS health messaging program was both feasible and acceptable within a remote community setting. Through sustained community engagement, iterative refinement, pilot testing, implementation and evaluation, the SMS program was shaped to reflect local priorities, language, and cultural values, resulting in good enrolment, high message delivery success, and participant engagement. Importantly, no participants opted out during implementation, indicating trust in the program and acceptability of SMS as a health communication modality.

This study was not designed to evaluate clinical effectiveness; rather, it aimed to develop, implement, and assess the feasibility, acceptability, and contextual fit of a co-designed SMS program in a very remote Aboriginal community. Findings from early community consultations and hybrid co-design workshops indicated that the SMS program was not only technically feasible, but also culturally appropriate and locally owned. These features are likely to support engagement and may facilitate health-related behaviour by providing timely prompts, reinforcing existing knowledge, and encouraging connection with local health services[16].

Embedding the DE framework[20, 21] following the principles of strength-based approach, shaped the tone and content of messages in ways that resonated with community values. Among Aboriginal people, messages about health check-ups and mental health were seen as particularly valued in this study. Cultural practices such as hunting, language use, sport, and connection to Country were particularly well received, reinforcing cultural identity and a strength-based approach as a protective factor for health and wellbeing. This finding aligns with Indigenous-led health frameworks that emphasise holistic wellbeing, cultural continuity, and collective strength rather than deficit-based messaging[20, 33–35].

A consumer-centric approach is especially vital in remote communities, program and technology development and implementation[6], where the current situation of geographical isolation and limited infrastructure fundamentally dictates how technology must perform[2]. In our study, the digital readiness assessment conducted before implementation of the SMS program, provided important contextual insight into the feasibility of SMS delivery. Most participants reported reasonable stability in phone numbers and devices, minimal privacy concerns, and limited phone sharing, all of which support the reliability of SMS as a delivery mechanism. The high message delivery success rate (94%) further confirms the technical feasibility of SMS messages in this setting. However, despite co-design embedding hyperlinks within SMS messages, engagement with these links was minimal according to the feedback received during the interviews, indicating that access alone does not translate into use. This finding highlights that link-clicking behaviour is influenced by trust, perceived relevance, digital literacy, and familiarity with online navigation, rather than technical feasibility alone[36]. In similar contexts, unfamiliar link particularly those containing “https” or external domains may be viewed with caution or ignored altogether, especially where there is limited experience with web-based health resources or concerns about scams. In addition, although no participants formally unsubscribed from the SMS program during the study period, some individuals may have disengaged from the intervention without explicitly opting out or notifying the research team.

SMS programs from an equity and digital inclusion perspective, these results must be interpreted with caution and situated within the broader structural realities that shape access in remote and underserved contexts[2]. This study was conducted in a single community and therefore device loss, frequent changes of phone numbers, shared phone use, and inconsistent connectivity may remain as challenges in different community settings[37]. These barriers are often structurally driven, reflecting issues of affordability, housing instability, service coverage, and varying levels of digital literacy.

Importantly, such factors may disproportionately affect individuals with the greatest health needs, thereby risking the exclusion of those whom digital health initiatives aim to support. Among First Nations communities living in remote areas of Australia, daily internet use has increased substantially from 44% to 62%, while the proportion of non-users has declined from 20% to 14%. Despite this progress, affordability continues to constrain meaningful digital inclusion. In 2024, 73% of surveyed internet users reported making compromises on speed and/or data allowances to manage costs, a marked increase from 35% in 2022[38]. These financial trade-offs often translate into intermittent connectivity, reduced capacity to engage in high-bandwidth activities such as video consultations, and limited ability to

download or update health applications. Moreover, beyond affordability, digital inclusion is shaped by intersecting factors including device availability, digital literacy, culturally appropriate content, and trust in digital systems. SMS-based approaches should be implemented as part of a flexible, inclusive communication strategy that incorporates regular contact verification, culturally appropriate support, and alternative non-digital or assisted pathways to ensure equitable access and sustained engagement.

Strengths and limitations of this study

This study used an interactive and participatory process, actively involving community researchers and clinicians in the development of the SMS content ensuring that messages reflected locally identified priority topics and were culturally relevant. Messages were delivered through a secure platform (<https://digicuris.com/>), ensuring data security and privacy. This study highlights the importance of a transparent roadmap for the development of evidence-based digital health tools, once documenting each phase of the process from community consultation and co-design through to pilot testing, implementation, and evaluation a replicable framework is available to guide future initiatives in similar contexts. However, limitations also need to be considered. The study was conducted in a single very remote community, which may limit the generalisability of findings to other Aboriginal and Torres Strait Islander communities. Cultural contexts, language groups, governance structures, and digital access conditions vary across regions, and an approach that is feasible and acceptable in one setting may not translate directly to another. Nevertheless, there are transferable lessons and findings. The platform used to deliver SMS messages did not provide data on message engagement, such as whether participants opened or read the messages. Message delivery was recorded only as successful or unsuccessful; therefore, actual exposure to and impact of the content could not be confirmed. To minimise this, engagement was explored during the qualitative interviews once the participant could recall some messages received. In addition, outcome measures relied on self-reported data, which introduces the possibility of recall bias or social desirability bias. Broader structural determinants such as affordability of telecommunications services, digital literacy, and systemic health inequities were beyond the scope of this SMS program alone. While SMS-based health messaging program may demonstrate promise, determining its effectiveness is complex.

Conclusion

The SMS health-promotion program demonstrated that mobile messaging is a feasible and acceptable approach to supporting health communication in a very remote Aboriginal community. Across survey, implementation, and interview participants, the program was perceived as culturally relevant, easy to understand, and useful for sharing information about health, wellbeing, and local services. Message delivery was high (94%), and no participants formally opted out during the study period.

Despite challenges related to phone access, digital literacy, and connectivity, the program successfully delivered consistent health-promotion messages and was generally well received by community

members. Participation from 42 individuals within a community of approximately 317 residents suggests meaningful community engagement and highlights the potential scalability of SMS-based health promotion in similar remote settings. Participants identified opportunities to strengthen future implementation, including improving communication about link safety, providing additional digital literacy support, and increasing integration with local health services. Overall, these findings indicate that SMS messaging is a promising, and culturally appropriate strategy for supporting health promotion in remote Aboriginal communities and provide practical insights for future implementation and scale-up.

Declarations

Ethics approval and consent to participate

The overarching project was reviewed and approved by the Human Research Ethics Committee of the Northern Territory Department of Health and Menzies School of Health Research (NT HREC Approval Number: 2022–4275). Administrative approval was also obtained from the Research Governance Office, NT Health (EFILE2023/8720), and a permit to conduct research was provided by the relevant Land Council.

Conflict of interest

None declared.

Funding

The current project is supported by the Digital Health CRC Limited (DHCRC). DHCRC is funded under the Australian Commonwealth's Cooperative Research Centres (CRC) Program. This is a collaborative project among multiple partners in Australia: the Australia Government Department of Health, Disability and Ageing, Department of Health - Northern Territory Government, Primary Health Care Network Northern Territory, Aboriginal Medical Services Alliances Northern Territory, Healthdirect, Australia Digital Health Agency, Menzies School of Health Research, and The University of Sydney.

Author Contribution

JC: investigation, methodology, validation, data collection, analysis, writing original draft– review and editing, project administration. NN: concept, investigation, methodology, validation, review and editing. VK: concept, investigation, methodology, validation, review and editing. ES: writing – review and editing, supervision, resources. AVH: methodology, validation, review and editing. CC: concept, methodology, validation, review and editing. NK: concept, methodology, validation, review and editing. JP: concept, methodology, validation, review and editing. TC: investigation, funding acquisition, writing – review and editing, project administration, resources. PB: investigation, funding acquisition, writing – review and

editing. MM: writing – review and editing, funding acquisition, investigation, supervision. KC: methodology, data collection, validation, review , project administration. KO: methodology, data collection, validation, review , project administration. KW: resources, project administration, writing– review and editing, validation, methodology. AP: methodology, data collection, validation, review , project administration. SN: investigation, funding acquisition, methodology, writing – review and editing, supervision. MD: investigation, funding acquisition, writing – review editing, supervision. DR: investigation, funding acquisition, writing – review and editing, project administration, resources. DE: review and editing, visualisation, validation, methodology. AL: funding acquisition, writing – review and editing, resources, project administration. JW: supervision, resources, project administration, writing – review and editing, methodology, conceptualisation, investigation, funding acquisition. DR: conceptualisation, investigation, funding acquisition, methodology, writing – review and editing, project administration, supervision, resources. TS: conceptualisation, investigation, funding acquisition, methodology, writing – review and editing, project administration, supervision, resources.

Acknowledgements

We acknowledge all project partners and participants for their time, engagement, and the valuable insights shared through interviews and ongoing discussions. Their formal and informal contributions have been central to the progression of this implementation project. We particularly acknowledge the Indigenous co-authors for their leadership, cultural guidance, and contributions to the study, ensuring that community voices and perspectives were meaningfully represented in this.

Data availability

Relevant data generated or analysed are included in this article. De-identified data can be obtained from the corresponding author on reasonable request. The data are not publicly available due to them containing information that could compromise research participant privacy and consent.

References

1. Fatima Y, Liu Y, Cleary A, Dean J, Smith V, King S et al (2023) Connecting the health of country with the health of people: Application of caring for country in improving the social and emotional well-being of Indigenous people in Australia and New Zealand. *Lancet Reg Health West Pac.* ;31:100648. PMID: 36444333. 10.1016/j.lanwpc.2022.100648
2. Russell DJ, Humphreys J, Veginadu P, Mathew S, Williams R, Cooney S et al Remote health: what are the problems and what can we do about them? Insights from Australia. *BMC Health Serv Res.* 2025 2025/05/03;25(1):641. 10.1186/s12913-025-12828-0
3. Collaborators GBDRF (2024) Global burden and strength of evidence for 88 risk factors in 204 countries and 811 subnational locations, 1990–2021: a systematic analysis for the Global Burden of

- Disease Study 2021. *Lancet* 403(10440):2162–2203 PMID: 38762324. 10.1016/S0140-6736(24)00933-4
4. Balaj M, Henson CA, Aronsson A, Aravkin A, Beck K, Degail C et al (2024) Effects of education on adult mortality: a global systematic review and meta-analysis. *Lancet Public Health* 9(3):e155–e65. 10.1016/S2468-2667(23)00306-7
 5. Canuto KJ, Aromataris E, Burgess T, Davy C, McKivett A, Schwartzkopff K et al (2021) A scoping review of Aboriginal and Torres Strait Islander health promotion programs focused on modifying chronic disease risk factors. *Health Promotion J Australia* 32(1):46–74 PMID: 31724783. 10.1002/hpja.307
 6. Khanal V, Shaw T, Wills E, Wakerman J, Russell DJ (2024) Co-design of digital health technologies in Australian First Nations communities. *Lancet Digit Health* 6(2):e90 PMID: 38278618. 10.1016/S2589-7500(23)00251-0
 7. Chow CK, Klimis H, Thiagalingam A, Redfern J, Hillis GS, Brieger D et al (2022) Text Messages to Improve Medication Adherence and Secondary Prevention After Acute Coronary Syndrome: The TEXTMEDS Randomized Clinical Trial. *Circulation*. ;145(19):1443-55. PMID: 35533220. 10.1161/CIRCULATIONAHA.121.056161
 8. Dawson J, Howell M, Howard K, Campbell KL, Craig JC, Tong A et al (2022) Cost-effectiveness of a mobile phone text messaging program (KIDNEYTEXT) targeting dietary behaviours in people receiving haemodialysis. *J Hum Nutr Diet* 35(5):765–773 PMID: 34323334. 10.1111/jhn.12937
 9. Compernelle S, DeSmet A, Poppe L, Crombez G, De Bourdeaudhuij I, Cardon G et al (2019) Effectiveness of interventions using self-monitoring to reduce sedentary behavior in adults: a systematic review and meta-analysis. *Int J Behav Nutr Phys Act*. ;16(1):63. PMID: 31409357. 10.1186/s12966-019-0824-3
 10. Golbus JR, Shi J, Gupta K, Stevens R, Jeganathan VSE, Luff E et al (2024) Text Messages to Promote Physical Activity in Patients With Cardiovascular Disease: A Micro-Randomized Trial of a Just-In-Time Adaptive Intervention. *Circ Cardiovasc Qual Outcomes* 17(7):e010731 PMID: 38887953. 10.1161/CIRCOUTCOMES.123.010731
 11. Akhu-Zaheya LM, Shiyab WY (2017) The effect of short message system (SMS) reminder on adherence to a healthy diet, medication, and cessation of smoking among adult patients with cardiovascular diseases. *Int J Med Inf* 98:65–75 PMID: 28034414. 10.1016/j.ijmedinf.2016.12.003
 12. Orr JA, King RJ (2015) Mobile phone SMS messages can enhance healthy behaviour: a meta-analysis of randomised controlled trials. *Health Psychol Rev* 9(4):397–416 PMID: 25739668. 10.1080/17437199.2015.1022847
 13. Thakkar J, Kurup R, Laba TL, Santo K, Thiagalingam A, Rodgers A et al (2016) Mobile Telephone Text Messaging for Medication Adherence in Chronic Disease: A Meta-analysis. *JAMA Intern Med* 176(3):340–349 PMID: 26831740. 10.1001/jamainternmed.2015.7667
 14. Chow CK, Redfern J, Hillis GS, Thakkar J, Santo K, Hackett ML et al (2015 Sep) Effect of Lifestyle-Focused Text Messaging on Risk Factor Modification in Patients With Coronary Heart Disease: A

- Randomized Clinical Trial. JAMA 22–29(12):1255–1263 PMID: 26393848.
10.1001/jama.2015.10945
15. Chau SL, Luk TT, Wong BYC, Wu YS, Cheung YTD, Ho SY et al (2024) A Brief Intervention With Instant Messaging or Regular Text Messaging Support in Reducing Alcohol Use: A Randomized Clinical Trial. JAMA Intern Med 184(6):641–649 PMID: 38587827. 10.1001/jamainternmed.2024.0343
 16. Hall AK, Cole-Lewis H, Bernhardt JM (2015) Mobile text messaging for health: a systematic review of reviews. Annu Rev Public Health 36:393–415 PMID: 25785892. 10.1146/annurev-publhealth-031914-122855
 17. Hobson GR, Caffery LJ, Neuhaus M, Langbecker DH (2019) Mobile Health for First Nations Populations: Systematic Review. JMIR Mhealth Uhealth 7(10):e14877 PMID: 31593537. 10.2196/14877
 18. Vodopivec-Jamsek V, de Jongh T, Gurol-Urganci I, Atun R, Car J (2012) Mobile phone messaging for preventive health care. Cochrane Database Syst Rev 12(12):CD007457 PMID: 23235643. 10.1002/14651858.CD007457.pub2
 19. Puljevic C, Meciar I, Holland A, Stjepanovic D, Snoswell CL, Thomas EE et al (2025) Systematic review and meta-analysis of text messaging interventions to support tobacco cessation. Tob Control 34(2):228–238 PMID: 38448226. 10.1136/tc-2023-058323
 20. Laycock A, Bailie J, Matthews V, Bailie R Using developmental evaluation to support knowledge translation: reflections from a large-scale quality improvement project in Indigenous primary healthcare. Health Res Policy Syst. 2019 2019/07/19;17(1):70. 10.1186/s12961-019-0474-6
 21. Patton MQ (2011) Developmental evaluation: Applying complexity concepts to enhance innovation and use. Developmental evaluation: Applying complexity concepts to enhance innovation and use: The Guilford Press; p. xxi, 375-xxi
 22. Emary PC, Stuber KJ, Mbuagbaw L, Oremus M, Nolet PS, Nash JV et al (2023 Mar-Apr) Quality of Reporting Using Good Reporting of A Mixed Methods Study Criteria in Chiropractic Mixed Methods Research: A Methodological Review. J Manipulative Physiol Ther 46(3):152–161 PMID: 38142381. 10.1016/j.jmpt.2023.11.004
 23. Tong A, Sainsbury P, Craig J (2007) Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care 19(6):349–357 PMID: 17872937. 10.1093/intqhc/mzm042
 24. Huria T, Palmer SC, Pitama S, Beckert L, Lacey C, Ewen S et al (2019) Consolidated criteria for strengthening reporting of health research involving indigenous peoples: the CONSIDER statement. BMC Med Res Methodol. ;19(1):173. PMID: 31399058. 10.1186/s12874-019-0815-8
 25. Khanal V, Saurman E, Russell DJ, Newton N, Coombes K, Puruntatameri A et al (2025) Optimizing Digital Solutions to Improve Access to Comprehensive Primary Health Care Services in Remote Indigenous Communities: Protocol for a Participatory Action Research Project. JMIR Res Protoc 14:e68892 PMID: 40961485. 10.2196/68892

26. Khanal V, Saurman E, Newton N, Wilson K, Comachio C, Coombes K et al (2025) Digital health technologies to improve access to comprehensive primary health care in remote Northern Territory, Australia: qualitative findings from thought leader interviews.
<https://www.researchsquare.com/article/rs-7837584/v1>. <https://doi.org/10.21203/rs.3.rs-7837584/v1>. [Manuscript submitted for publication]
27. Stratton SJ (2021) Population Research: Convenience Sampling Strategies. *Prehosp Disaster Med* 36(4):373–374. 10.1017/S1049023X21000649
28. Byrne AL, McLellan S, Willis E, Curnow V, Harvey C, Brown J et al (2021) Yarning as an Interview Method for Non-Indigenous Clinicians and Health Researchers. *Qual Health Res* 31(7):1345–1357 PMID: 33645333. 10.1177/1049732321995802
29. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K (2015) Purposeful Sampling for Qualitative Data Collection and Analysis in Mixed Method Implementation Research. *Adm Policy Ment Health* 42(5):533–544 PMID: 24193818. 10.1007/s10488-013-0528-y
30. Kennedy M, Maddox R, Booth K, Maidment S, Chamberlain C, Bessarab D Decolonising qualitative research with respectful, reciprocal, and responsible research practice: a narrative review of the application of Yarning method in qualitative Aboriginal and Torres Strait Islander health research. *Int J Equity Health*. 2022 2022/09/13;21(1):134. 10.1186/s12939-022-01738-w
31. Dhakal K, NVivo (2022) *J Med Libr Association* 110(2):270–272 PMID: 35440911. 10.5195/jmla.2022.1271
32. Dhakal K, NVivo. (2022) *J Med Libr Assoc* 110(2):270–272 PMID: 35440911. 10.5195/jmla.2022.1271
33. de Carvalho Coroa R, Ben Charif A, Robitaille V, Abdoulaye Samri DGVM, Akpo M (2024) Strategies for involving patients and the public in scaling initiatives in health and social services: A scoping review. *Health Expect* 27(3):e14086 PMID: 38837509. 10.1111/hex.14086
34. Cox A, Dudgeon P, Holland C, Kelly K, Scrine C, Walker R (2014) Using participatory action research to prevent suicide in Aboriginal and Torres Strait Islander communities. *Aust J Prim Health* 20(4):345–349 PMID: 25310135. 10.1071/PY14043
35. Dudgeon P, Gibson C, Walker R, Bray A, Agung-Igusti R, Derry K et al (2025) Social and Emotional Wellbeing: a Review. *Lowitja Inst*. 10.48455/4f9e-3v29
36. Ferraris G, Monzani D, Coppini V, Conti L, Maria Pizzoli SF, Grasso R et al (2023 Jan-Dec) Barriers to and facilitators of online health information-seeking behaviours among cancer patients: A systematic review. *Digit Health* 9:20552076231210663 PMID: 38107979. 10.1177/20552076231210663
37. Featherstone D, Thomas J, Holcombe-James I, Ormond-Parker L (2024) Closing the digital gap for remote First Nations communities: 5G and beyond? *Media Int Australia* 190(1):23–38. 10.1177/1329878x231201746
38. Thomas J, McCosker A, Parkinson S, Hegarty K, Featherstone D, Kennedy J et al (2025) Measuring Australia's Digital Divide: 2025 Australian Digital Inclusion Index. ARC Centre of Excellence for

Figures

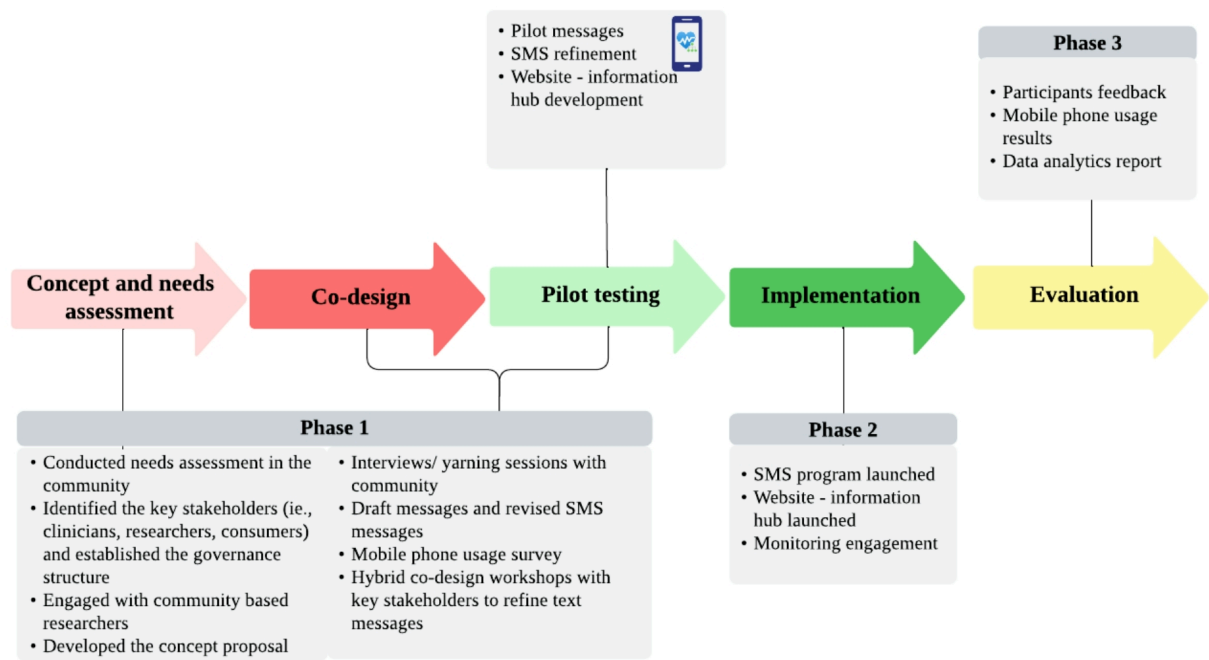


Figure 1

Overview of the project lifecycle, including the development, implementation, and evaluation phases of the SMS health promotion program.



Figure 2

Figure 3. Word cloud based on participant feedback.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [SupplementaryfileSMSprogram.docx](#)