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Acceptability and quality of the 'Grog Survey App' brief intervention: Helping Aboriginal Australians reflect on their drinking using a digital health tool

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Abstract

Introduction: The Grog Survey App is a validated, visual and interactive self-administered application for tablet computers that is designed to help Aboriginal Australians describe their alcohol consumption. Each person who completes the App also receives a brief intervention with feedback tailored to their survey responses. We aimed to qualitatively assess the acceptability and perceived quality of the Grog App's brief intervention, among higher risk consumers and health providers at an Aboriginal residential rehabilitation centre.

KS Kylie Lee and James H Conigrave are joint first authors.

Methods: This descriptive qualitative study analysed feedback from clients ($n = 20$) and staff ($n = 10$) of a drug and alcohol residential rehabilitation service on the brief intervention element of the Grog App. Data were collected face-to-face via semi-structured interviews over four consecutive weeks between May and June 2021. A content analysis was conducted, which was informed by the Mobile App Rating Scale (MARS).

Results: Client and staff feedback is summarised using four themes from the MARS framework: (i) aesthetics; (ii) engagement; (iii) functionality; and (iv) information. Most clients and staff felt like health messages on the brief intervention were written by 'someone who understands'. Overall, clients and staff described the brief intervention as visually appealing, engaging and likely able to elicit 'lightbulb moments'.

Discussion and Conclusion: The brief intervention on the Grog App is unique in its provision of tailored advice based on survey responses to all individuals (i.e., those who do not drink through to those with likely dependence). Further research is needed to assess effectiveness of this brief intervention.

KEYWORDS
Aboriginal, alcohol, brief intervention, Grog Survey App, Torres Strait Islander

1 | INTRODUCTION

First Nations peoples have unique cultural identities and strengths, and First Nations leaders have led efforts to improve the outcomes of their peoples [1, 2]. In Australia, Aboriginal and Torres Strait Islander peoples describe alcohol as a key community concern [3, 4]. Substance misuse among First Nations peoples has many causes, including intergenerational effects from settler colonisation, racism, lack of socioeconomic opportunities, grief from early deaths [5] and higher imprisonment rates [6]. In Australia, Aboriginal and Torres Strait Islander peoples experience up to eight times the risk of alcohol-related hospitalisations compared with their non-Aboriginal and Torres Strait Islander counterparts [7]. New efforts are needed to reduce this gap in outcomes.

Brief face-to-face interventions for unhealthy alcohol use are highly effective [8]. The latest Cochrane review of brief interventions found moderate-quality evidence that they reduce drinking compared to minimal or no intervention (−20 g/week, 95% confidence interval −28, −12; among people who are not dependent). In-person brief intervention provides an opportunity to build rapport between clinician and client [9, 10]. However, intervention design may need adjustment to suit cultural needs when working with Aboriginal and Torres Strait Islander clients.

Several interventions have been crafted specifically for Aboriginal and Torres Strait Islander peoples to address issues like alcohol [11–13], cannabis [14], mental illness and substance misuse [15] and methamphetamines [16]. A notable example is a community-based 'Alcohol Awareness' study [11] which used the FLAGS framework [17] (Feedback, Listen, Advice, Goals, Strategies). In the 'Alcohol Awareness' study [11], visual printed resources were created with Aboriginal and non-Aboriginal health professionals (in urban New South Wales). These resources were used to talk with individuals about their drinking after completing the Alcohol Use Disorders Identification Test, a 10-item alcohol screening tool [18]. However, this project relied on heavy staff investment and management, and is unlikely to be scalable.

Implementing brief interventions can be challenging. In Aboriginal and Torres Strait Islander Community Controlled Health Services, general practitioners and other health staff have reported not being confident in providing brief alcohol interventions [19]. Some of these health professionals described talking with clients about their drinking as 'getting in too close' as talking about drinking can be seen as too sensitive or private [12]. Other barriers include a lack of cultural awareness among fly-in-fly-out health staff, especially in remote settings, and client worries around confidentiality [10, 20, 21].

Digital solutions offer many advantages over in-person brief interventions. Standardised electronic tools provide consistent and systematic brief intervention delivery [22, 23]. Such digital tools can be self-administered and offer a low-cost, time-saving alternative to in-person brief intervention [24]. Digital brief interventions also offer a level of privacy and anonymity that is not possible with in-person delivery. As such, digital surveys have also

enhanced the disclosure of sensitive information [25, 26]. Accordingly, digital solutions may enable more equitable delivery of brief interventions to higher-risk and other priority populations (e.g., Aboriginal and Torres Strait Islander peoples Nations peoples, pregnant individuals, young people, cultural and linguistically diverse) [27].

Tailored electronic brief interventions for higher alcohol consumption can be as effective as face-to-face interventions [28]. Electronic brief interventions substantially reduce alcohol consumption (−23 g/week, 95% confidence interval −30, −15) relative to no/minimal intervention controls. Digital interventions can effectively address a wide range of drinking patterns (e.g., low, moderate, high-risk or episodic drinking). However, available electronic brief interventions are typically not adapted to distinct cultural groups or other priority populations [28]. Many are also text-heavy (e.g., Alcohol, Smoking and Substance Involvement Screening Test check-up), which poses challenges for people not comfortable reading English.

In First Nations contexts several digital interventions have been developed that target substance use. These include the Tertiary Student Alcohol Health Check, developed for Māori students in New Zealand [29]. In Australia, the 'Stay Strong' app (previously known as the Australian Integrated Mental Health Initiative) was designed to support Aboriginal and Torres Strait Islander adults with chronic mental illness and substance use dependence [15]. The 'Wada Wanti' app (previously titled 'We can do it') targets methamphetamine use [16]. However, none of these tools specifically targets drinking behaviours, and can provide tailored feedback for people with a broad range of drinking patterns.

To address this gap, we developed and validated a visual and interactive self-administered tablet computer-based application ('Grog App') to help Aboriginal and Torres Strait Islander peoples in Australia to describe their drinking as part of population surveys [30]. The App detects 93% of those at short-term risk of harms compared with a clinical interview conducted by an Aboriginal health professional (specificity: 70%) [31]. Subsequently, we added a tailored brief intervention to the Grog App, which is based on each person's unique survey responses [23]. This brief intervention is visual and considers the person's pattern of alcohol consumption, and self-reported experience of harms or dependence symptoms. The App provides feedback to app users based on their screening results. This feedback was adapted from a brief intervention [11] that has been shown to be effective in a World Health Organization multi-country trial [32]. The brief intervention is designed to be usable within a single 5-min period.

During user testing in two Australian states—regional and remote South Australia and urban Queensland, the Grog App's screening tool received positive feedback from participants (three questions on the Grog App; Likert scale) and from lead field research assistant observation ($n = 3$) [23]. Research assistants reported that approximately 50% of participants (total $n = 200$) commented that completing the app prompted reflection on their drinking [23]. However, this feedback focused only on the survey component of the Grog App, and on survey administration including technical challenges of delivering a digital health tool.

The brief intervention component of the Grog App has not yet undergone specific assessment. Brief interventions aim to change behaviour, not just measure it, making them challenging to create. Brief interventions must balance guidance with user autonomy, particularly for First Nations Australians whose self-determination has been undermined. This complexity may contribute to low staff confidence in delivering brief interventions to Aboriginal and Torres Strait Islander Australians [19].

In this paper, we aimed to qualitatively assess the acceptability and quality of the Grog App's brief intervention from the perspectives of higher risk consumers who are receiving care for alcohol use, and health providers working in drug and alcohol residential rehabilitation facility, and their health providers. Patients in residential care, who face serious challenges with alcohol and may be especially sensitive to poorly structured content due to power dynamics, form a particularly important cohort for this study. Health providers interact directly with patients and thus understand what content patients generally find engaging or disengaging. Accordingly, providers also provide valuable insights into the intervention's suitability. Findings from this study can advance understandings of how to structure brief interventions for First Nations Australians [13].

2 | METHODS

This paper is a qualitative analysis of feedback from clients and staff of a drug and alcohol residential rehabilitation service—on the accompanying brief intervention in the Grog App.

2.1 | Collaborative research approach

This descriptive qualitative study was conducted collaboratively with researchers from five universities (KS Kylie Lee, Elizabeth Dale, Katherine M Conigrave, Angela Dawson, Noel Hayman, James H Conigrave, Michelle Fitts) and three health services (Scott Wilson, Jimmy Perry, Noel Hayman, Katherine M Conigrave), including staff from the Aboriginal Drug and Alcohol Council

South Australia Aboriginal Corporation (Scott Wilson, Jimmy Perry), and management, staff and clients of The Glen Group residential rehabilitation centre (Danielle Manton, Alex Lee; 'The Glen'). This work forms part of a larger program of research, which aims to extend the use of this digital app (Grog App) to tobacco and illicit drug use (cannabis, methamphetamines, heroin, opioid-based painkillers and benzodiazepines).

2.2 | Grog Survey App

The Grog App questions, which feed into an accompanying tailored brief intervention, use a modified 'Finnish method' [33] to ask about the timing (last two occasions) and quantity (previous two occasions) of drinking in the last 12 months [34]. The App's content and user interface were designed through an extensive consultation process involving Aboriginal and Torres Strait Islander and non-Aboriginal and Torres Strait Islander health, wellbeing and alcohol experts, community representatives and researchers [30].

Broadly, the App has questions on demographics, alcohol consumption (10 items), alcohol dependence (3 items based on the *International Classification of Diseases 11th Revision* [35]), harms to self or others, treatment access and participants' feedback on using the App. The App 'reads out' the questions and response options in English or in Pitjantjatjara (an Aboriginal language spoken in three regions of Australia—Northern Territory, South Australia and Western Australia; chosen by Scott Wilson and Jimmy Perry as it is commonly spoken by community members across two Australian states and one territory). The App takes around 10 min to complete [23].

After completing the Grog App, each person receives immediate, tailored feedback via the same App (Figure 1). This brief intervention is based on a World Health Organization alcohol brief intervention that was adapted for an urban Aboriginal Australian context (New South Wales) [11]. The intervention includes elements of the FLAGS model [36]. To provide 'feedback' and show that the App is 'listening', the App provides each individual a visual representation of their survey responses, including their median standard drinks per occasion. They then see their drinking level placed on a risk triangle (high risk through to low risk, or no drinking in the last 12 months). 'High risk' is allocated if a person has two or more features of dependence at least weekly, or consumed more than 10 Australian standard drinks per week; 'Low risk' is drinking less than the limits set out in the 2020 Australian national guidelines [37]. Advice provided by the App includes a description of the benefits of getting alcohol under control and a description of the Australian drinking guidelines [37]. The latter is expressed visually, including images to explain the recommended limits when sharing larger quantities of alcohol. To prompt the participant to consider what goals they would like to work towards, a visual depiction of the strategies to change drinking. Strategies to cut down are presented and for those with likely dependence, strategies for 'stopping' drinking are also presented. Lastly, strategies are offered to get people thinking about what they could do to reduce harms from drinking (for themselves or someone else). This section was designed in that way, so that the participant could have a role in choosing which of the 2–3 goals they would like to work towards.

When administering the Grog App, field research assistants hand the tablet computer to participants, providing brief guidance, then stand to one side, available in case of any challenges. Individuals with no prior computer contact could usually use the App without assistance [23]. The App is designed to work 'offline' (without access to the internet) with data uploaded at the end of each working day to a secure encrypted University of Sydney server. This allows the Grog App to be used in regions without consistent internet access.

2.3 | Setting

The Glen is an all-male, 36-bed residential rehabilitation facility located on the Central Coast of New South Wales, Australia. Auspiced by the Ngaimpe Aboriginal Corporation, the service is available for Indigenous and non-Indigenous peoples seeking recovery from dependence on alcohol and/or illicit substance use. Clients are offered a holistic, 12-week abstinence-based program that includes: interpersonal, grief and trauma counselling, gambling counselling, parenting programs, Alcoholics and Narcotics Anonymous meetings, work experience and living skills education.

2.4 | Recruitment

We used convenience sampling to recruit 10 staff and 20 clients from The Glen, an all-male alcohol and other drug residential rehabilitation centre located on the Central Coast of New South Wales. To participate in the study, individuals needed to be over 18 years of age, either residing or employed within the rehabilitation service and capable of providing informed consent. The recruitment process was co-designed with service managers and implemented by a designated staff member of the service (nominated by service managers). This approach helped to ensure minimal disruption to day-

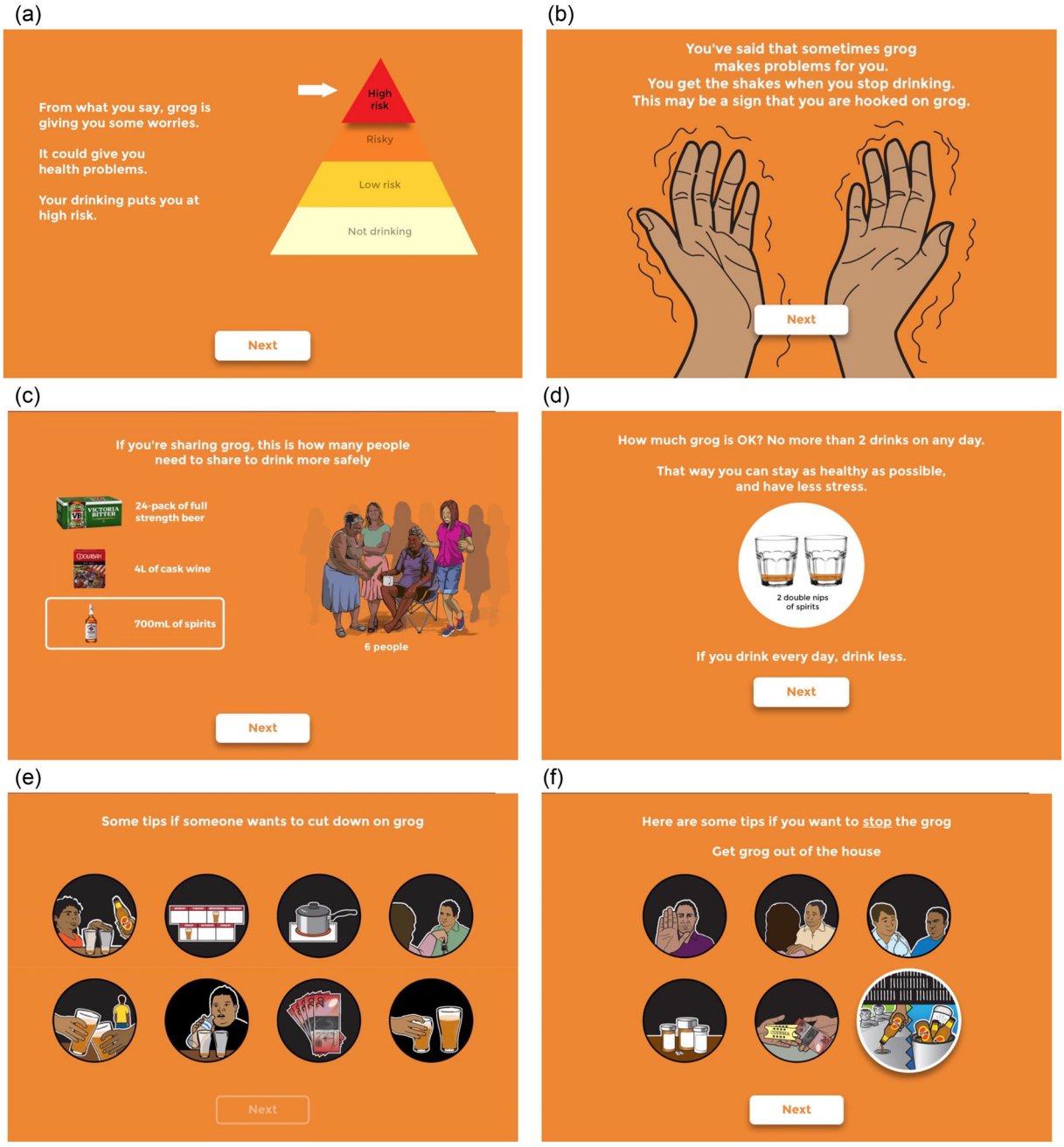


FIGURE 1 Examples of the FLAGS (Feedback, Listen, Advice, Goals, Strategies) framework from the Grog App brief intervention.

to-day delivery of the rehabilitation program. Staff members were purposefully recruited (by Elizabeth Dale and Taleah Reynolds) and interviewed first before clients. This approach ensured that clients who could take part (as deemed by staff and clients) were invited to interview. All participants provided informed written consent.

2.5 | Data collection

Data were collected face-to-face via semi-structured research topic 'yarning' interviews [38] over four consecutive weeks between May and June 2021 (interview duration: 11–50 min). Yarning is a relational and culturally appropriate way to obtain perspectives from Indigenous peoples on a research topic [38]. Yarning interviews are conversational and less structured than traditional research interviews, prioritising sharing, storytelling and mutual understanding [38, 39]. Two Aboriginal researchers (Elizabeth Dale, Worimi; Taleah Reynolds, Anaiwan) conducted interviews to suit participant preference, either one-on-one or in small groups (2 to 4 participants in each group).

First, participants were asked to complete the Grog App on an iPad using their choice of actual or

hypothetical responses. Their response data was not stored when participants used the App, as the purpose was solely for them to familiarise themselves with the survey and brief intervention. Participants were then invited to comment on the brief intervention provided via the Grog App (e.g., layout, content, imagery). A4-sized printed screengrabs of the Grog App's content were shown to participants during the interviews to remind the participants of content and to stimulate more detailed yarns. Participant feedback focused on the brief intervention, or comments on style of presentation of survey questions, which has relevance to how the brief intervention was presented. All yarning interviews were audio recorded with permission and professionally transcribed. Participants were invited to verify an emailed copy of their transcripts before data analysis. Clients were acknowledged for their time with a $20 store voucher.

2.6 | Data analysis

A content analysis was conducted which was informed by the Mobile App Rating Scale (MARS) [40]. MARS is a validated tool developed to assess the quality of mobile health applications. We applied relevant categories that defined the scale of the MARS tool as an a priori framework to guide the coding of interview data. Four out of the five MARS categories were used: (i) aesthetics—graphics, layout, visual appeal; (ii) engagement—entertainment, customisation, fit-to-target group; (iii) functionality—performance, navigation, gestural design; and (iv) information—quality, quantity, visual information, credibility. The fifth criterion (subjective quality—likely to use again, likely to pay to use) was excluded as it did not align with the Grog App's intended purpose as a community survey and brief intervention tool that is free for participants to use. MARS was selected over other theoretical frameworks because of its suitability as a validated Australian tool to assess acceptability of mobile health applications.

All interview transcripts were read first by one researcher (Elizabeth Dale) who conducted a first analysis of the data. Selected transcripts were also read independently by other researchers (KS Kylie Lee, Angela Dawson, Taleah Reynolds). Agreement was reached about coding interviews according to the four categories in an online meeting (Elizabeth Dale, Taleah Reynolds, Angela Dawson, KS Kylie Lee), then in four smaller group meetings (Taleah Reynolds, Angela Dawson, KS Kylie Lee) and finally via email (Elizabeth Dale, Taleah Reynolds, Angela Dawson, KS Kylie Lee) to reach consensus. Data were managed using NVivo version 12.

2.7 | Ethical approval

Ethical approval was granted by the Aboriginal Health Council of South Australia (04-20-874), Aboriginal Health and Medical Research Council of New South Wales (1716-20) and Queensland Metro South Human Research Ethics Committee (#HREC/2021/QMS/73775).

3 | RESULTS

Twenty clients and 10 staff were recruited for interviews (in nine small group interviews; three one-on-one interviews with staff; all staff were interviewed first, then clients). Clients were primarily Aboriginal men (85%; mean age, 34.1 years, SD = 9.7), 15% of clients were not Aboriginal or Torres Strait Islander. No other cultural characteristics were asked of clients who were non-Indigenous. Alcohol and methamphetamines were the most common primary substances of concern for clients (each $n = 8/20$ clients). For those who used more than one type of substance, the majority reported cannabis (41%) or alcohol (17%) as a secondary substance (Table 1). Staff were primarily male ($n = 6/10$; mean age, 41.5 years, SD = 7.5). Most staff ($n = 8/10$) identified as Aboriginal and had 3–10 years of experience in alcohol and other drug service provision. Staff were employed in various positions at the service (Table 2).

Client and staff feedback is summarised using four themes from the MARS framework: (i) aesthetics; (ii) engagement; (iii) functionality; and (iv) information. Clients did not always differentiate between comments about the survey part of the Grog App and the accompanying brief intervention. Therefore, comments made about the survey that were directly relevant to the brief intervention were retained.

3.1 | Aesthetics

Nearly all clients ($n = 20/20$) and staff ($n = 9/10$) found the App's brief intervention visually appealing:

> 'I thought it was really clear. I liked the images. I liked the placement of the images [of harms from alcohol] because it obviously relates to where they are in the body'.
>
> (staff ID 10)

> 'It's interactive which is fun. You know what I mean? It's not just reading. When you're reading paragraph to paragraph, it can get

TABLE 1 Client characteristics ($n = 20$).

	n	%
Gender		
Male	20	100
Age, years		
18–25	4	20
26–35	6	30
36–45	6	30
46–55	4	20
55+	-	-
Indigeneity		
Aboriginal	17	85
Aboriginal and Torres Strait Islander	-	-
Torres Strait Islander	-	-
Non-Aboriginal or Torres Strait Islander	3	15
Primary substance		
Alcohol	8	40
Tobacco	-	-
Cannabis	2	10
Heroin	1	5
Methamphetamines	8	40
Opioid-based painkillers	-	-
Benzodiazepines	-	-
Cocaine	1	5
Secondary substance[a]		
Alcohol	3	17
Tobacco	1	6
Cannabis	7	41
Heroin	2	12
Methamphetamines	2	12
Opioid-based painkillers	-	-
Benzodiazepines	1	6
Cocaine	1	6

[a]$n = 17$ clients reported a secondary substance of use.

TABLE 2 Staff characteristics ($n = 10$).

	n	%
Gender		
Male	6	60
Female	4	40
Age, years		
18–25	-	-
26–35	1	10
36–45	7	70
46–55	1	10
55+	1	10
Indigeneity		
Aboriginal	8	80
Aboriginal and Torres Strait islander	-	-
Torres Strait Islander	-	-
Non-Aboriginal or Torres Strait Islander	2	20
Role		
Intake officer	3	30
Operations manager	1	10
Outreach worker	2	20
Counsellor	2	20
Case manager	1	10
Research manager	1	10
Highest education		
Year 12 or below	1	10
Graduate certificate or diploma	6	60
University degree	3	30
Number of years of experience in AOD sector		
0–2	2	20
3–5	4	40
6–9	1	10
10 or more	3	30

Abbreviation: AOD, alcohol and other drug.

> really boring. But when there's pictures and things you can touch, it's a bit, you know what I mean? It's interactivee'.
>
> (client ID 9)

A small group of interviewees ($n = 4/20$ clients, $n = 2/10$ staff) suggested that some visual elements could be altered to increase engagement with the App as well as differentiate across different content:

> 'My opinion, change the background [App screen colour] as well, make the other colours pop out ... Something that reaches out and grabs you ...'
>
> (client ID 4)

> 'Change [the colour of the] low risk [band] to light blue [on the risk triangle on the brief intervention, that shows health risks from drinking]—because there is a similar colour already on the triangle'.
>
> (client ID 6)

In keeping with this, one interviewee expressed concern about potential fear arising from feedback provided on drinking:

> 'I'm just thinking if I answered that red top one [i.e. received feedback that drinking fell in the top risk category], like I'd be panicking. Like it's red—the colour red. It sort of seems like oh, wow. High risk'.
>
> (client ID 2)

More than half of the clients and two staff (12/20 clients, 2/10 staff) suggested that 'real-life' images of drinking and related harms in the App's brief intervention would have more impact than drawings or stylised images:

> 'Yeah, make it real life pictures [of harms], it's more impact[ful] ...'
>
> (staff ID 5)

> 'Have pictures of like how life would be without drugs'.
>
> (client ID 5)

However, in contrast, one participant pointed out (in relation to the survey section of the App) that realistic pictures of alcohol could trigger craving:

> 'Someone could be having a bad day and do this [survey] and really struggling with, oh, I feel like a drink today. See that there [a realistic picture of alcohol beverage] and go, bang, "I'm going to the bar"'.
>
> (staff ID 2)

3.2 | Engagement

All interviewees said that using the App (including the brief intervention) was entertaining and engaging:

> 'Yeah, everyone learns differently ... It's better than just someone talking or text. People could say that we can read but sometimes people just skip through it'.
>
> (client ID 2)

> 'The visual aspects were good too. The colours and that. It's not just plain you asking questions. It's sort of something fun I guess'.
>
> (client ID 2)

> 'It was short, it was sharp, and it was sweet, and it was on the punchline'.
>
> (staff 1)

The majority of interviewees ($n = 16/20$ clients, $n = 9/10$ staff) commented on the App as being able to help people have a "lightbulb moment" concerning their alcohol misuse:

> 'This is an eye-opener. This will help people actually'.
>
> (client ID 18)

> 'I think some of the questions are also giving you insight into your behaviours around your family'.
>
> (staff ID 3)

> 'They might be experiencing that kind of stuff [i.e. harms] and not putting it down to the drinking, but with that and going through the App they might go, "Oh shit, maybe that's what's causing it" or "Maybe go see the doctor" or whatever'.
>
> (staff ID 5)

> 'I want to get this App for my dad ... he has like a carton [of beer] for himself a day'.
>
> (client ID 16)

The majority of interviewees ($n = 12/20$ clients, $n = 7/10$ staff) described the survey and brief intervention as culturally appropriate for Aboriginal Australians—the remaining interviewees made no mention of cultural appropriateness.

> 'I like the fact that it's—it's like it's our language, you know. It's like I feel like it's been written by someone who understands'.
>
> (staff ID 1)

> 'I think like it's good how you've got the questions and stuff like that, and I think that might help as well because I think a lot of Aboriginal people do feel more welcome with other Aboriginal people or more comfortable'.
>
> (client ID 7)

A small number of interviewees ($n = 2/20$ clients, $n = 2/10$ staff) commented that they liked the health information presented in the brief intervention:

> 'For me, I like a lot of medical and scientific information, even when it's like, especially when things like the liver ... Even things like the swollen feet. I was walking around with swollen feet for ages, and I didn't know what it was from, so it is good [amount of] information there [on the App]'.
>
> (client ID 20)

The inclusion of a phone number for a helpline at the end of the brief intervention was suggested by some interviewees to ensure there was accessible support after completion of the app ($n = 15/20$ clients, $n = 1/10$ staff):

> 'If people need help there should be a number that they could call, like a helpline'.
>
> (client ID 16)

To further improve engagement with the target audience, some interviewees suggested improvements for the brief intervention ($n = 3/20$ clients, $n = 7/10$ staff):

> 'Educate them a bit more on the risks [from alcohol use]'.
>
> (staff ID 3)

> 'Throw deterrents in there [to using alcohol], that could just sort of rattle them and they go, oh, I don't want to do this no more'.
>
> (client ID 1)

> 'The only other thing would be if there are any tips or anything to manage the sickness, like if you feel sick in the stomach [when you first stop drinking], once you click on it, it could have a couple of tips ...'
>
> (staff ID 10)

The importance of plain language was again emphasised. One staff member felt that the word 'thiamine' in the brief intervention would not be recognised by some clients:

> 'Maybe put "vitamin B[1] or thiamine" [rather than just mentioning thiamine alone] ... so that everyone knows exactly what you're talking about'.
>
> (staff ID 7)

3.3 | Functionality

All interviewees commented that the whole survey including the brief intervention, was easy to use and navigate:

> 'It was easy to use. The questions were basic but on point'.
>
> (staff ID 4)

However, a handful of interviewees ($n = 3/20$ clients, $n = 2/10$ staff) found the functionality of the brief intervention unclear:

> 'I think it [the "benefits to making a change" information] was a little bit more confusing. It wasn't as clear as the other ones [survey questions]. I think [as] you have to click on it obviously to find the information out, it's not as clear'.
>
> (staff ID 10)

> '[The body card screen in the brief intervention] I didn't even know you could click on all of them'.
>
> (see Figure 2 for the 'body card' screen; client ID 14)

3.4 | Information

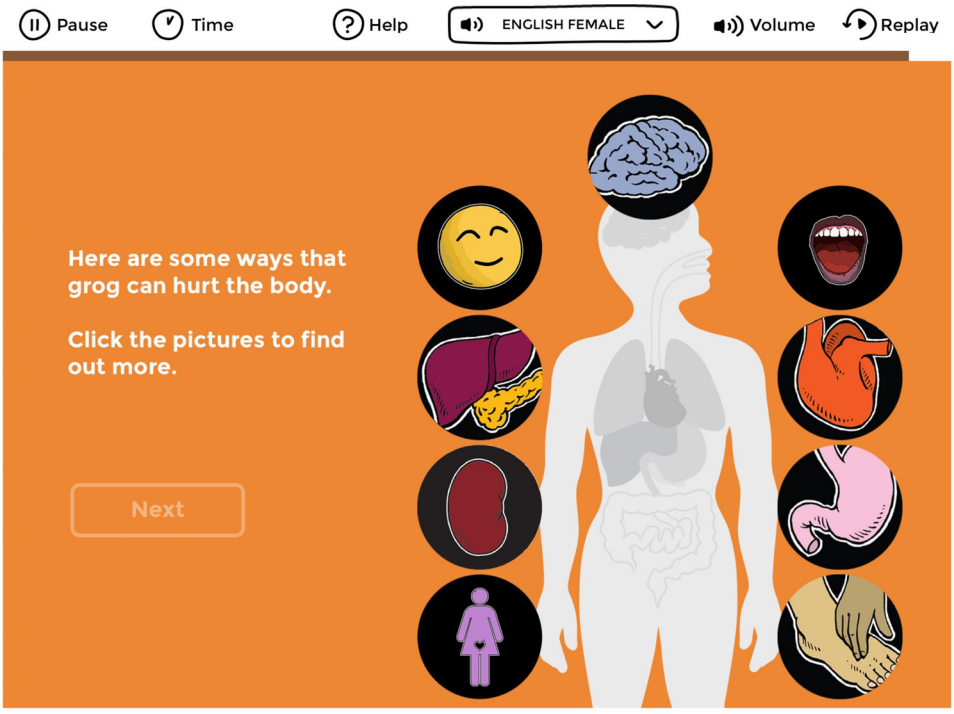
Nearly all interviewees said that the brief intervention offered detailed and appropriate information that could be applied to clients' everyday life ($n = 18/20$ clients, $n = 9/10$ staff):

> 'I think it's good that we've got something going out with some real solid information around drug and alcohol'.
>
> (staff ID 6)

> 'I spun out on it, because I didn't know there were like [relapse prevention] pills and that to help you to slow down on alcohol'.
>
> (client ID 18)

Most interviewees liked the 'bite-sized' pieces of information presented on the brief intervention ($n = 14/20$ clients, $n = 10/10$ staff):

> 'It's not overcrowding of information, so you don't have to read it all at once. It's easy to take the information on because it's small [sharp bits]. It's at your own control kind of thing, not just a whole screen of writing or anything'.
>
> (staff ID 10)



Each icon surrounding the body can be clicked on to get more information. This is read out by the voiceover.

FIGURE 2 Body 'card' screen on the Grog App.

> 'It was good ... the whole thing was worded pretty well'.
>
> (client ID 3)

To further improve information contained in the brief intervention, a small number of interviewees made suggested additions ($n = 2/20$ clients, $n = 2/10$ staff):

> 'Because of our lifespan now these days, I'd put in there the statistics on our mortality rate from these [alcohol] effects here'.
>
> (client ID 8)

> 'I think you could potentially maybe have another option or another dot [on the pregnancy screen] ... like you've got in subsequent screens about maybe even minimising or strategies to stop drinking or minimising your drinking consumption around the pregnant person'.
>
> (staff ID 10)

4 | DISCUSSION

We set out to qualitatively evaluate the alcohol brief intervention available on the Grog App. Most clients and staff felt like health messages on the brief intervention were written by 'someone who understands'. A key strength of the study was having data collection led by a Worimi clinical psychologist-researcher (Elizabeth Dale) and an Anaiwan research support officer (Taleah Reynolds) in close collaboration with the study site. Nearly all clients found the digital brief intervention visually appealing although half thought real images would be more effective than drawings. Participants stressed the importance of plain language. The intervention in its current form is likely culturally appropriate, and may be effective given most participants suggested the app would be able to elicit 'lightbulb' moments.

It can be difficult to strike the right balance when delivering messages on sensitive topics such as alcohol [12, 19]. Previous studies describe common elements of effective brief interventions [41] that are aligned with the approach taken on the Grog App. For example, listening to the individual; providing feedback and advice to change, including tips to reduce drinking; and using a strengths-based approach to help an individual to reflect on their drinking. A strengths-based approach—treatment that highlights positive characteristics (strengths) rather than solely on challenges (deficits)—has particular relevance for Aboriginal Australians as well as other priority populations (e.g., culturally and linguistically diverse, pregnant women) where stigma

around disclosure of drinking [42] and multiple competing health priorities [43] are well documented. Our findings provide guidance to creating brief interventions for Aboriginal Australians. Our interviewees stressed that advice and feedback needs to be culturally appropriate and able to 'speak to' individuals in a non-judgmental way. Staff interviewees also described a need for survey data to be integrated with existing patient software systems.

4.1 | Comparison with other digital alcohol brief interventions

Other digital interventions such as Stay Strong have been found culturally appropriate, acceptable and feasible for First Nations prisoners [44], and in rural and remote environments [45]. Our findings add to this literature, reinforcing that digital interventions can be culturally appropriate for First Nations peoples. However, Stay Strong delivers two, 1-h sessions, 2–6 weeks apart [46], whereas the Grog App's brief intervention is substantially shorter, being able to be completed within 10 min. This shorter format means there is less time available to unpack ideas in culturally appropriate terms. Despite this constraint, the Grog App's brief intervention was still found to be acceptable among clients with higher risk of alcohol problems, and their staff at a residential rehabilitation centre. Our findings highlight that even short digital interventions can be acceptable and culturally appropriate. This short format, if found effective, has the advantage that it can be delivered opportunistically to community members. This means people with a wide range of drinking patterns (low to high risk) can feasibly be given the intervention [23]. This allows the Grog app to be used for screening, health promotion, as well as brief intervention.

4.2 | Lessons for building culturally appropriate digital interventions

Digital interventions can create immersive experiences which cannot be replicated in paper-based interventions. In the case of the Grog App, we were able to use images, voiceovers in local Indigenous languages, and animations which were matched to participant gender. This reduced the pressure on information being presented via text, which fails to engage some and is not appropriate for others who have not had access to regular educational opportunities. Our participants told us that the look and feel of the app, the plain language used, and the incorporation of culturally relevant images, all contributed to the appeal of the application. The digital format also allowed different messaging to be targeted to participants based on their survey responses. For example, we could remind users of their responses, then give people with higher-risk advice about how their drinking may be affecting them, and how to get help, whereas users with low risk could get more general health literacy information, and advice about how to link others in with help. These elements could all be reused in future applications and are also likely to contribute to engagement and acceptability.

4.3 | Limitations

This research was conducted within an all-male residential rehabilitation program. We chose this setting as we believed higher risk populations such as this had the most to gain from the app. However, we intend to use the app in the general community, and the perspectives of people with lower risk profiles, and women are also relevant. Acceptability is highly subjective, and people with different personal histories may require tailored messaging. For example, practical guidance on activities to prevent drinking may need to target gender roles to be acceptable for more traditional Aboriginal women [30, 43]. Accordingly, assessments on intervention acceptability, based only on men, may not hold for women. There was no representation from peoples from the Torres Strait Islands who have distinct cultures. However, some of the experiences given by our Aboriginal participants may be relevant to some Torres Strait Islander Australians. We did not systematically record if staff members had lived experiences with alcohol or other drug use. A small proportion of participants were non-Indigenous, despite attending an Aboriginal Community Controlled residential rehabilitation centre. Some of these non-Indigenous clients had connections to Indigenous family members or were otherwise connected to the Indigenous community through friendships. Also important to note is that people may be more forthcoming with opinions depending on the way interviews are conducted. We allowed people to take the application in groups or as individuals as they pleased. While this contributed to participant comfort and allowed participants to share experiences with others, different perspectives might have emerged with a different interview format.

4.4 | Implications

The Grog App's brief intervention is the only tool of its kind to deliver instant feedback on self-reported alcohol use behaviours among Aboriginal Australians. Its

design—visual, interactive and engaging—offers a model for delivering health information to Aboriginal Australians.

While we found the Grog App's brief intervention acceptable, evidence is needed on its effectiveness. Further, assessment of the effectiveness of each individual component, and on modes of delivery are needed. It is not clear whether repeated sessions are needed, or if opportunistic once-off interventions will be effective. Or whether face-to-face interventions are preferred over digital interventions such as ours. There is also a dearth of controlled studies on brief intervention effectiveness with this population. Evaluation tools are also needed to benchmark digital applications designed for First Nations peoples in health.

5 | CONCLUSION

The brief intervention provided by the Grog App was found to be acceptable by Aboriginal Australian patients attending residential rehabilitation centres, and by service staff. Application users commented on the app's visual appeal, plain language and preferred visualisations to reading text. The messaging given by the app was considered important and lead to lightbulb moments for some users. Feedback on the Grog App brief intervention could inform other digital brief intervention efforts, and delivery of brief interventions in general.

AUTHOR CONTRIBUTIONS

S Kylie Lee: Conceived idea for the study and responsible for overall scientific integrity, mentored research team who collected data; led analysis; co-led writing. James H Conigrave: Co-led writing; led response to revisions. Elizabeth Dale: Led the data collection team; took part in analysis; reviewed drafts. Katherine M Conigrave: Took part in analysis; reviewed several drafts. Monika Dzidowska: Co-led writing of introduction; reviewed several drafts. Taleah Reynolds: Assisted with data collection; took part in analysis and intepretation; reviewed several drafts. Scott Wilson: Reviewed several drafts. Jimmy Perry: Reviewed several drafts. Danielle Manton: Helped oversee data collection; reviewed several drafts. Alex Lee: Helped oversee data collection; reviewed several drafts. Noel Hayman: Reviewed several drafts. Catherine Zheng: Co-led writing of introduction; reviewed several drafts. Michelle Fitts: Reviewed several drafts. Dan Wilson: Reviewed several drafts. Angela Dawson: Mentor during data analysis and interpretation; reviewed several drafts.

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CONFLICT OF INTEREST STATEMENT

None to declare.

DATA AVAILABILITY STATEMENT

Data are not available as per ethical approvals.

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