Exploring the cultural appropriateness and usefulness of a mHealth promotion program for infant feeding in an Urban Aboriginal Health Service: a qualitative study

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Abstract

Objective:
The aims of this study were to explore whether a health promoting mHealth program is a viable approach to provide infant feeding support to parents of Aboriginal infants and to explore the key factors that need to be considered in developing such a program to ensure that it is culturally appropriate and engaging.

Methods:
Ten parents of Aboriginal babies pilot tested an mHealth program ‘Growing healthy’, promoting healthy infant feeding practices, for six weeks, after which they participated in semi structured interviews to discuss their perspectives on the program, and suggestions for improvement. Two discussion groups with staff from an urban Aboriginal health were also conducted (n=17 and n=4) to explore how the program could be adapted to better meet the needs of Aboriginal families.

Results:
The data suggested that mHealth has the potential to provide infant feeding support as it was seen to be a credible and an easily accessible source of information. Overall, parents did not have any concerns with the program regarding cultural considerations, however the staff felt it was not culturally appropriate the way it was presented and made recommendations how to address this.

Conclusions:
The findings suggest that mHealth may be a viable mode for providing infant feeding support to Aboriginal families if key cultural insights are considered to maximise engagement and potential impact.

Implications:
The health promoting mHealth program: ‘Growing healthy’ which provides support for healthy infant feeding was useful and culturally acceptable for Aboriginal families in an urban setting.

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Introduction

Optimal infant feeding is an important determinant to the future health of a child. Infant feeding behaviours such as breastfeeding (1), formula feeding (2, 3), and introduction of solid foods (4, 5) are modifiable behaviours and timely junctures for health promotion interventions.

Despite the importance of early intervention to prevent obesity in Australian children, evidence on the effectiveness of health promotion programs for carers of Aboriginal and Torres Strait Islander (respectfully referred to hereafter as ‘Aboriginal’) children is scarce. Aboriginal infants are less likely to be breastfed and more likely to have solid foods introduced earlier than recommended (6) and obesity is more common (7). A systematic review (8) identified only two studies (both considered low quality) targeting obesity prevention in Indigenous children under five. No published studies were identified with Australian Aboriginal children. There is a need for research on obesity prevention programs for Aboriginal children that can be distributed through clinical practice and health promotion for significant population reach.

While acknowledging the diversity and differences within Aboriginal populations, effective health promotion programs designed to address health issues in Aboriginal populations require culturally appropriate, relevant, engaging and meaningful considerations (9). Central to achieving this, is incorporating the holistic viewpoint of health maintained by Aboriginal people (10), while recognising the needs and knowledge within Aboriginal populations, additionally incorporating community involvement in the development and delivery of health promotion programs (11). Development or adaptation of mainstream health promotion programs that are culturally appropriate, to meet the needs of Aboriginal populations offer more promising outcomes (12).

A potential method to deliver health promotion programs is via mobile health (mHealth) using mobile technologies, e.g. mobile phones. Early research on the effectiveness of internet and mobile devices to support positive health behaviour is promising (13). As of late 2016, 90% of mobile device sales in Australia were smartphones (14), which allow smart device applications or ‘apps’ to be downloaded. Apps can provide around the clock high quality tailored information and support at low cost (15). mHealth promotion programs offer possibilities for engaging Aboriginal people due to the availability and accessibility of the internet and social media through mobile phones (16). Although there is high ownership of mobile phones, more research is needed to understand the potential of health promoting mHealth programs for Aboriginal populations.

The aim of this study was twofold: firstly, to explore whether a mHealth promotion program is a viable approach to provide infant feeding support to parents of Aboriginal infants and secondly, to explore key factors that need to be considered when developing such a program to ensure that it is culturally appropriate and engaging. This study provides important information about the development of mHealth programs for Aboriginal populations.

Methods

Study setting

The study was conducted at the Southern Queensland Centre of Excellence in Aboriginal and Torres Strait Islander Primary Health Care (CoE); a Queensland Government primary health care service located in the outer south-western suburbs of Brisbane, Queensland (17). It is a comprehensive, multidisciplinary primary health care service for around 80 babies each year (18).

The Growing healthy Program

Growing healthy, a mHealth promotion program for parents of infants was pilot tested to investigate the research questions of this study. The program was developed to encourage and enable healthy infant feeding practices for socioeconomically disadvantaged families (19). The program provides evidence-based information and strategies to parents, consistent with national guidelines for optimal infant feeding in the first nine months of life. Information is available through an app for Smartphone’s, short message service (SMS) for those without Smartphone’s and a website. The program sends parents three messages a week on infant feeding topics and are tailored to the age of the infant and the parents feeding method. Further details about the program have been published elsewhere (19).

Participants and recruitment

Participants of the study were CoE clients and staff. Clients were eligible to participate if they attended the CoE, were over 16 years of age and were parents or carers of an Aboriginal and or Torres Strait Islander infant(s) under the age of nine months. Parents were recruited via flyers in the clinic waiting rooms, Facebook pages of the CoE, CoE staff, and word-of-mouth.

CoE staff were invited to participate in the study. The purpose of including staff in the study was to obtain their perspectives regarding mHealth programs and the potential effectiveness for use by clients of the service. Staff were provided with information on the Growing healthy program, along with access to the Growing healthy Internet site.
Data collection – Parents

Once parents used the Growing healthy program for at least six weeks, they were invited to participate in semi-structured interviews to explore their views and experiences regarding the program.

An interview guide was used to enable comfortable conversations (Table 1). Two interviews were conducted with most parents. Initial interviews were facilitated by an Aboriginal CoE staff member and attended by the lead author, the dietitian at the CoE for over six years. Subsequent interviews were facilitated by the lead author as a respectful relationship was established. Interviews were conducted by telephone, at the parents’ home, or at the health service; accommodating the preferences and availability of parents. Interviews lasted between 17-33 minutes, and when possible, audio recorded with the participant’s permission.

Data collection – CoE staff

Staff participated in group discussions to share their views on the content, appearance, utility and cultural appropriateness of the program. Two group discussions were conducted with CoE staff to accommodate participants.

Key topics covered in the CoE staff group discussions included the Growing healthy program and mHealth as a delivery mode for health promotion programs for clients of the CoE (Table 1). The lead author facilitated the discussion groups, ranging from 30 to 45 minutes each and recorded by an audio-recorder and hand written notes by co-authors.

Analysis

Audio-recordings of interviews and group discussions were transcribed verbatim. When this was not possible due to technical reasons or poor quality of audio recording (n=2), detailed notes were taken to supplement transcripts made throughout the data gathering period.

The transcripts were checked against recordings for accuracy in consultation with a co-author. The interviews were thematically coded using QSR International’s Nvivo 11 (20) qualitative data analysis software. Codes were initially created by the lead author and to improve the reliability of the analysis, transcripts, codes and themes were checked by a second author and further refined.

Ethics

Ethics approval was obtained from the Metro South Human Research Ethics Committee and The University of Technology Sydney’s Human Research Ethics Review Committee. The Inala Community Jury for Aboriginal and Torres Strait Islander Health Research (21) provided community approval and support for the research.

Table 1: Overview of interview guide for parent interviews and staff discussion groups

<table>
<thead>
<tr>
<th>Parent interview guide</th>
<th>CoE staff discussion group interview guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. When and how did they use the Growing healthy program?</td>
<td>1. What did they think of the appearance, feel and content of the program?</td>
</tr>
<tr>
<td>2. What did they think of the appearance, feel and content of the program?</td>
<td>2. What cultural issues did they think would be important to consider in the design of an app on infant feeding for Aboriginal parents?</td>
</tr>
<tr>
<td>3. Discussion around their mobile phone, app and internet usage- including health information.</td>
<td>3. What did they believe makes a successful, culturally appropriate program and why?</td>
</tr>
<tr>
<td>4. Feeding experiences and their main feeding concerns.</td>
<td>4. What are the main nutrition issues they face in the community?</td>
</tr>
<tr>
<td>5. Where do they usually get their support and information about feeding baby from?</td>
<td>5. Where do their patients usually get their infant feeding information from?</td>
</tr>
<tr>
<td>6. Discussion around cultural appropriateness for health promotion programs, including the Growing healthy program.</td>
<td>6. Do their patients use health related apps, including ones related to infant feeding?</td>
</tr>
<tr>
<td>7. Any recommendations on how to make the program more culturally appropriate or engaging?</td>
<td></td>
</tr>
</tbody>
</table>
Results

Participants

Semi-structured interviews were conducted with eight mothers and two fathers. Eight parents used the app, while two parents used the website (Table 2). Follow up interviews were held with six of the parents. The parents’ ages varied, as did other key demographic characteristics, including their level of education and their infant’s age at the time of recruitment.

Twenty-one staff including administration staff, paediatricians, child health nurses, general practitioners, and registered nurses participated in the study (Table 2).

Table 2: Key demographic characteristics of participants

<table>
<thead>
<tr>
<th>Parents</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age group</strong></td>
<td></td>
</tr>
<tr>
<td>18 – 25</td>
<td>3</td>
</tr>
<tr>
<td>26 – 30</td>
<td>3</td>
</tr>
<tr>
<td>30 – 35</td>
<td>4</td>
</tr>
<tr>
<td><strong>Highest level of education</strong></td>
<td></td>
</tr>
<tr>
<td>Year 10</td>
<td>1</td>
</tr>
<tr>
<td>Year 12</td>
<td>5</td>
</tr>
<tr>
<td>Diploma or certificate</td>
<td>2</td>
</tr>
<tr>
<td>University</td>
<td>2</td>
</tr>
<tr>
<td><strong>Parent’s infant age</strong></td>
<td></td>
</tr>
<tr>
<td>0 – 3 months</td>
<td>4</td>
</tr>
<tr>
<td>4 – 6 months</td>
<td>3</td>
</tr>
<tr>
<td>7 – 9 months</td>
<td>1</td>
</tr>
<tr>
<td><strong>Staff</strong></td>
<td></td>
</tr>
<tr>
<td>Registered Nurse</td>
<td>8</td>
</tr>
<tr>
<td>Child Health Nurse</td>
<td>4</td>
</tr>
<tr>
<td>Paediatrician</td>
<td>2</td>
</tr>
<tr>
<td>Administration Officer</td>
<td>2</td>
</tr>
<tr>
<td>General Practitioner</td>
<td>5</td>
</tr>
</tbody>
</table>

Viability of mHealth as a mode of delivering infant feeding support to Aboriginal parents and parents of Aboriginal children

Three main themes appeared from the data when investigating mHealth as a potential resource for providing parents with infant feeding support.

1) Parents use of mobile phones

A central theme to emerge was the high use of mobile phones by parents. Participants spoke of parents being technologically savvy, and parents referred to accessing apps, YouTube clips, social media and the internet from their mobile phones for infant feeding information and support prior to the Growing healthy program.

“I tried Googling stuff…. like the food, when to start giving her baby foods.” Parent 1.

2) Functionality, technical issues and content

The functionality, technical difficulties, and the amount of content were identified as issues and barriers of the Growing healthy app by parents. Almost every parent said they experienced technical difficulties which prevented them from using the app for a period. Staff mentioned that they found internet sites too content heavy and difficult to navigate, however welcomed a straightforward app.

“Because websites are often confusing and overwhelming for the patients…. something simple like a simple app to refer to would be good.” Staff 7.

3) Easily accessible and credible information sources

Many parents mentioned the content within the program and features such as the push notifications were useful, helpful, consistent, reassuring and coincided with their baby’s stage of development. Parents and staff mentioned they commonly searched for apps and Internet sources for information and support regarding infant feeding, but were unable to locate appropriate apps or sites.

“I’ve tried looking for some [phone apps], but I couldn’t find any before. I think it was like when she was newborn… I couldn’t find any that was a help…. I know with breastfeeding, we’ve looked up so much stuff. And he [father] was YouTubeing everything.” Parent 1.

“I think it’s good to have a source that [parents] can access easily.” Staff 6.
Parents reported they favoured using the Growing healthy program over searching the Internet, and found it positive that a single source was readily accessible for infant feeding information.

“...you’ve got 50 million different websites that you can go to, but an app is so specific to what you're looking for.” Parent 2.

The Growing healthy program was trusted by parents as a credible source for information. It was found that the information provided within the program influenced feeding practices; it reinforced parent’s knowledge, or improved confidence with feeding, particularly in relation to the introduction of solid foods. Similarly, staff reported parents frequently asked questions regarding the introduction of solid foods.

Parents self-reported increases in knowledge and changed their perceptions and practices regarding infant feeding after using the Growing healthy program.

“A lot of people have been saying – “oh you should start her on solids”…. so, that was good…. when I’d read the first one [push notification regarding the introduction of solids] about six months, I’m like – “okay yep, I’ll just keep waiting.” Parent 2.

Considerations for developing mHealth programs

Generally, parents raised minor concerns with the appropriateness of the Growing healthy program. Most staff, including Aboriginal staff, thought modifications were required for the program to be more culturally appropriate. Two key themes emerged.

1) Visual presentation and language

The use of images was considered extremely important to almost every staff member and some parents felt that the pages within the program looked plain and uninteresting. The participants provided suggestions on what could engage Aboriginal people to use the app including art work, more images, and colours. A few parents expressed that the absence of Aboriginal cultural representations did not prevent them from using the program.

“It doesn’t matter what, picture, as long as it’s got the information in it and it’s helping you. It’s got nice little colours on there (the app), and so I don’t see no problem with it.” Parent 7.

In contrast, staff had strong opinions about this and collectively reported a need for images, design and colours to be representative of Aboriginal populations throughout the app. Staff thought this would increase engagement and effectiveness with clients accessing health information.

“The more visual the better…. nothing wordy or long, or it loses us….. I would recommend this to my sisters/cousins….it has to be visual, appealing with lots of photos for me to use this.” Staff 5.

When the parents were asked about the language used in the program they had positive feedback, for example it was “good”, “easy to understand”; “plain and simple” and “no technical words”. Some staff members were concerned about the language not being familiar with some parents.

“Straight away looking at the home page I see the word ‘breastfeeding’ and I would never use that term, only use familiar words like ‘susu’, as that is what I would use in a consultation.” Staff 12.

Parents felt the tone of language was appropriate because it was clear and was subtle in its delivery and the information was depersonalised. One parent mentioned the program reduced the risk of parents feeling inadequate or judged for less optimal feeding practices, and for others, it provided reassurance they were doing the right thing in uncertain times.

2) Carers and real life experiences

Information inclusive of and available to other family members and carers of Aboriginal children was expressed as important by participants. Parents felt the app should include topics dedicated to specific family members including fathers. One parent observed that the app referred to ‘Mum’ only, and thought the term ‘parents’ or similar would be more appropriate.

When asked how the program could be modified to be culturally appropriate; a few of the parent participants suggested presenting information as stories of personal experiences from other people or case studies to resolve infant feeding concerns. Parents felt that this would provide more of a connection between the information and themselves and strengthened their belief and trust from the program.

“You can have like speech bubbles about what other people have done or real experiences... a story maybe.” Parent 9.

Staff suggested including videos and images that offer advice or guidance via representation of a trusted/respectful community member. The rationale offered was that the information provided could potentially be more meaningful for parents and carers.

“Aunty …….reminds you to get your…… shot every month:…. And it’s got her image.” Staff 7.

1 “Susu” is an Aboriginal English term for ‘breast’ used in the community.
**Discussion**

The present study explored the viability of using the Growing healthy mHealth program to support optimal infant feeding in an Aboriginal health service and key considerations in ensuring cultural appropriateness. The findings suggest that mHealth can be a viable mode of delivery for health promotion programs for Aboriginal families by complementing existing key health messages. mHealth may also fill a gap for parents, as they were seeking infant feeding and health information via this mode, however were not finding suitable sources. mHealth has been widely accepted across many populations (22), and offers exceptional opportunity to provide information to people who may not usually access health care services by providing real time health information (23), which this research has reinforced. This is particularly relevant when referring to infant feeding, which many challenges occur when health care services are not available, for example in the middle of the night, or the difficulty of a parent bringing an infant to a health center for support as identified by the staff participants in the study. However, the fewer technical difficulties, the more the users will be able to use the mHealth program to its full capacity, as parents expressed during this study.

Parents did not identify any major cultural issues with the app or website. Staff members identified different program characteristics that could be modified to improve engagement from parents. The differences in the views of staff compared to parents may be because staff didn’t pilot test the program for a complete experience, such as parents did.

The non-confrontational nature of mHealth programs may support health promotion approaches with Aboriginal populations (24). This was viewed as an advantageous quality and supported by results of the current study; the Growing healthy program was perceived as non-threatening and non-judgemental of the parents’ feeding practices. mHealth programs allow users to refer and respond to the information at a time that is appropriate for them, and may increase a sense of empowerment over decision making process; therefore supporting individual and environment health literacy (25).

An awareness and understanding of current and past issues that affect Aboriginal populations is essential in health care provision to facilitate optimum outcomes (11). Collectively, Aboriginal people experience poorer health, resulting from limited access and engagement with the health sector (26); a consequence of historical incidents and injustices (27). Aboriginal culture has much strength, such as the supportive extended family network and kinship. It informs a more holistic view of wellbeing (28). Modifying the program to fit these principles, for example having the program available to more than just the mother, in particularly with other family members may provide more consistent advice and potentially better outcomes may be achieved, which has been published elsewhere (29).

Other key considerations for maximising engagement and culturally appropriateness for Aboriginal people included the app ‘look and feel,’ the use of pictures and narratives to deliver content. General imagery, colour and talent were important elements which helped communication of key messages, which has been reported in other health promotion research with Aboriginal people (30). By acknowledging these considerations, health literacy is more likely to be supported by enhancing the communication and understanding between health professionals and parents, and therefore lead to better uptake and access of health promotion messages (31, 32).

Throughout the research several strengths and limitations were identified. A key strength of this research was the pre-existing relationships genuinely established and maintained between parents, the lead author and health service. The relationship may have contributed to parents agreeing to participate and comprehensively engage with the Growing healthy program. Previous studies suggest strong, respectful relationships between health professionals and participants is an essential component of effective health promotion programs with Aboriginal people (33). The existing relationship was important to reduce the risk of parents feeling judged about their infant feeding and infant care practices. With the removal of Aboriginal children into out-of-home care (34) an important and ongoing issue for Aboriginal people, parents may have responded carefully during the interviews mindful of the risk of health care professionals evaluating the care they provide for their infants.

A limitation in this study was the small number of parents involved and limited number of locations. It is important to note that Aboriginal communities across Australia are not a homogenous group and vary in their cultural beliefs and practices, language, historical events and geography (35). Therefore, it is important to note that this research cannot generalise to the whole population of Aboriginal people. It does however provide insights into the use of mHealth to support infant feeding practices in Aboriginal communities and may support people living close to health services. Ideas for future research in this area may be to trial the Growing healthy program in other Aboriginal areas where health professionals and infant feeding information may be difficult to access (36) providing a greater reach.
Conclusion

This study offers insights into how mHealth can be a viable method of health promotion delivery and address infant feeding for Aboriginal families in an urban location. The findings suggest there may be substantial benefits from the use of mHealth programs to improve overall health of Aboriginal people. Making information consistent, and therefore strengthens health promotion messages provided by a health care professional and health care service particularly in the area of infant feeding. Key cultural considerations need to be taken into account in developing mHealth programs to maximise engagement and potential impact of these programs in urban Aboriginal communities.

The present study explored the viability of using the Growing Healthy mHealth program to support optimal infant feeding in an urban location. Aboriginal health service and key considerations in ensuring cultural appropriateness. The findings suggest that mHealth can be a viable mode of delivery for health promotion programs for Aboriginal families.

Competing interests and acknowledgements

The authors would like to thank the parents who trialled the app and who participated in the interviews. We also thank the staff members from the Southern Queensland Centre of Excellence in Aboriginal and Torres Strait Islander Primary Health Care (otherwise known as the “Inala Indigenous Health Service) who participated in the focus groups.

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Please note that COMPaRE-PHC closed on the 30th June 2016, and therefore does not have a fixed address. For more information and or enquiries, please see the website http://compare-phc.unsw.edu.au/ or contact Associate Professor Elizabeth Denney-Wilson, Stream 1 leader: Elizabeth.Denney-Wilson@uts.edu.au.

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