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Giri-nya-la-nha (talk together) to explore acceptability of targeted smoking cessation resources with Australian Aboriginal women

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ABSTRACT

Objectives: To engage with health providers and Aboriginal women to understand what educational resources they want and need to support quit smoking attempts during pregnancy in order to develop a comprehensive evidence-based intervention.
Study design: Resources were developed in partnership with Aboriginal people, communities and academics with the aim to be inclusive of diverse communities. We then recruited Aboriginal women of various ages for yarning circles (focus groups) held in three Australian states to explore the acceptability of the resources and seeking further guidance as to the needs of Aboriginal women to support smoking cessation during pregnancy.
Methods: Yarning circles were recorded and transcribed, and data were analysed independently by two researchers. Responses were coded using predetermined themes and further general inductive analysis for emergent themes.
Results: Twenty-four Aboriginal women reflected on the resources they included: one pregnant woman, 15 mothers and eight elders. Predetermined themes of attraction, comprehension, cultural acceptability, graphics and layout, persuasion and self-efficacy were explored. Women suggested the following: resources need to be visually attractive and interactive to enhance self-efficacy; additional scientific content on health consequences of smoking and combining with non-pharmacological approaches to quitting.
Conclusion: Indigenous peoples prefer culturally targeted messages. However, developing effective Aboriginal health promotion requires more than a 'culturally appropriate' adaptation of mainstream resources. Consideration needs to be given to the diversity of Aboriginal communities when developing effective, evidence-based interventions. Aboriginal women are calling for innovative and interactive resources that enhance self-efficacy; the use of videos to explain medical and informational brochure content is well

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received. Requests for non-pharmacological cessation options were reported in New South Wales and Queensland and should be further explored.

Introduction

Indigenous people around the globe experience poor health outcomes resulting in lower life expectancy, regardless of the World Bank income level of the country.[1] A range of factors associated with social and cultural determinants of health impact the health and well-being of Indigenous people. The current health inequities experienced by Indigenous people worldwide are a direct result of colonisation.[2] Ten years ago, the United Nations Declaration on the Rights of Indigenous Peoples gave acknowledgement to the suffering of Indigenous people from historic injustices that have prevented them from exercising their rights and building the foundations for the advancement of Indigenous peoples.[3]

Involvement of Aboriginal people and communities is crucial to the development of ethical research practice and development of holistic health and well-being interventions and services.[4,5] Through privileging the voices of Aboriginal people in the development of interventions, new ways of addressing health disparities can be found. In Australia, the implementation of ethical health research by partnering with Aboriginal and Torres Strait Islander people (hereafter referred to as Aboriginal with respect to the autonomy of the two peoples) has been accepted by the National Health and Medical Research Council and extended across funding and ethical bodies since 1991.[5]

Addressing Australian Indigenous health inequities is a national policy priority through the 'Closing the Gap' campaign.[6] The campaign acknowledges the significant impact that social and cultural determinants of health play in the well-being of Aboriginal people across the life span and have created key targets in infancy and early childhood, education, employment, economic development, health promotion and screening and safe communities.[6] Our research sits within the infancy and early childhood targets of the 'Closing the Gap' campaign, addressing the high prevalence of smoking among Aboriginal pregnant women (45% Aboriginal vs 13% general population)[6,7] and impacting the health of Aboriginal babies. Twelve percent of babies born to Aboriginal mothers in general have low birth weight and are 1.5 times more likely to be small for gestational age.[8] Low birth weight increases the risk of chronic diseases, which significantly lowers the life expectancy of Aboriginal people in Australia.[9–11] The rates of smoking during pregnancy have declined by 11.7% in the general population but only by 1.4% in Aboriginal women.[12] Tobacco interventions have been successful in decreasing tobacco use in pregnancy and raising babies birth weights, but these outcomes have not been evident for Aboriginal and other Indigenous women.[13]

Effective smoking cessation interventions during pregnancy include the following: psychosocial interventions (including counselling, feedback and incentives),[14] cognitive behavioural therapy including 'stages of change'[15] and nicotine replacement therapy (NRT).[15,16] It has been suggested that smoking cessation interventions for pregnant women need to be implemented in maternal care settings.[15] However, during pregnancy, health professional (HPs) support for planned cessation is weak,[17] and low rates of NRT is prescribed to pregnant smokers in Australia.[18] There remains a paucity of reciprocal approaches taken to support pregnant smokers to quit smoking during pregnancy.[19]

Aboriginal pregnant smokers have reported HP advice to be inconsistent[20] and have requested improved understanding of the quitting process and support efficacy.[21] HPs working with Aboriginal pregnant smokers have been reported to lack confidence to motivate women to quit and advising about NRT options.[22]

Fewer Aboriginal smokers, than general population counterparts, have made or sustained a quit attempt for at least a month, with quit attempts frequently lasting less than a week.[23] While NRT is agreed to help cessation, only 37% of Aboriginal people (vs 58.5% in general population) have used these.[24] Two-thirds of Aboriginal smokers have reported that they want to quit, suggesting that motivation is not the barrier.[23] However acknowledging the impact of social and cultural determinants of health, current interventions and tobacco control efforts does not appear to overcome the challenges in sustaining quit attempts.[23] Acknowledging the challenges of smoking cessation in the wider Aboriginal community, Aboriginal women who are pregnant and current smokers require more intensive support to make planned and successful quit attempts.

There is a lack of current evidence to evaluate the effectiveness of smoking cessation interventions in Aboriginal pregnant women during pregnancy.[25] In the broader population, health education resources specifically tailored to pregnancy are more effective in changing smoking behaviour than the standard resources.[26,27] Indigenous populations in high-income countries prefer culturally targeted tobacco control messages.[28,29] However, interventions developed for Aboriginal people require considerations to be given to cultural differences and traditions when tailoring interventions and associated educational resources.[13] Aboriginal people are diverse, and this should be addressed in health promotion development to ensure that messages are appropriate across different settings.[28,30,31]

Owing to the high prevalence of Aboriginal maternal smoking, there is a need for innovative health promotion materials to support culturally tailored interventions to

enhance smoking cessation during pregnancy.[32–34] Building knowledge, skills and resourcefulness in smoking cessation care with pregnant Aboriginal women will have a perpetual effect within Aboriginal communities to enhance Aboriginal health and well-being.

Partnering with Aboriginal communities privileges Aboriginal knowledge and perspectives and builds resilience through returning ownership and control to Aboriginal people to help us understand what is important, acceptable and needed to improve the health and well-being of Aboriginal people.[35] *Giri-nya-la-nha* is an Aboriginal word from Wiradjuri language meaning 'talk together'. *Giri-nya-la-nha* draws on the wisdom of the established yarning methodology[36] and applies this practice to the process of developing a culturally responsive smoking cessation intervention with a range of Aboriginal women and communities.

The Indigenous Counselling and Nicotine QUIT in Pregnancy project

The Indigenous Counselling and Nicotine (ICAN) QUIT in Pregnancy project is an intervention based on the published 'Pragmatic guide to culturally competent care for Aboriginal and Torres Strait Islander maternal smokers'.[37] The project is a pilot maternal smoking cessation intervention developed in collaboration and negotiation with Aboriginal researchers, the Aboriginal Community Controlled Health Services (ACCHSs) and Aboriginal communities.[38] ICAN QUIT in Pregnancy offers three one-hour webinar training sessions to all health providers (HPs) at the ACCHS, using guidelines that incorporate counselling and NRT and following an ABCD framework: A, ask/assess; B- brief advice; C- cessation; and D, discuss psychosocial context.[37] HPs are also offered a suite of educational resources to support the intervention and free oral NRT to provide as needed to pregnant women who smoke.[39]

The testing of all resources developed for the project underwent a four-step process that included the following: (1) scientific review by a multidisciplinary expert panel; (2) 'suitability of materials' rating by two Aboriginal health workers; (3) readability scores using an online tool; and (4) focus groups (yarning circles) with both HPs and female community members in New South Wales (NSW), South Australia (SA) and Queensland (Qld). This article describes the development of the women's resources and the results of the yarning circles with female community members, during steps 1–3. Focus groups with HPs have been reported elsewhere.[40]

Methods

Development of educational resources

A participatory action research approach was used in the developmental phase of the ICAN QUIT in Pregnancy project, which was conducted in partnership with two ACCHS in NSW. The details of this developmental phase have been reported elsewhere.[38] Over a 12-month period, a working party (WP) guided the development of the intervention resources and guided a pilot implementation plan. The WP was made up of Aboriginal and non-Aboriginal maternal health practitioners at the two ACCHS and Aboriginal female community members. The WP made recommendations on what health education resources they would need to implement a smoking cessation intervention targeted to pregnant women at their services. This group recommended a flip chart for HPs to guide conversations about smoking cessation with Aboriginal women, a training manual for HPs and patient brochures to provide education on quitting smoking during pregnancy. Suggested topics for brochures included the following: how to make your home smoke free, smoking in pregnancy and smoking triggers and individual NRT brochures explaining the appropriate use.

The WP preferred the use of photographs of Aboriginal women and babies over artworks and cartoons. Through consultation with Aboriginal research staff and community, it was agreed that photographs of women from a range of Aboriginal communities, with a range of features and skin colours, would help reflect the diversity of our Aboriginal communities.[31] The content within the resources included tailored messages addressing myths and beliefs reported in previous research[34] (see Table 1).

To overcome challenges with inconsistent literacy levels, as well as understanding and comprehension of medical content across communities, the researchers suggested short videos to be made and embedded into the brochures. The WPs were very supportive of the idea of using videos, and they suggested content that would be beneficial in these videos. Through augmented reality via a smartphone app 'Layar,' women could scan the brochure with their smartphone, and the videos would upload on their phone. The videos were developed to explain the content of the brochure in a culturally appropriate way through engagement with an Aboriginal obstetrician, a Torres Strait Islander General Practitioner and local Aboriginal women as peer informers. Short video topics that were later built-in to the print resources included the following: how smoke reaches the baby when pregnant, addressing myths of smoking when pregnant, explaining smoking triggers and approaches to address these and instructions on how to use the different forms of NRT.

An Aboriginal researcher (M.B.) collaborated with an Aboriginal filmmaker/photographer and together with their established local community networks engaged women from a range of communities for local photography and video sessions. The images of women were taken from communities in the Northern Territory, Victoria and urban and rural NSW. Torres Strait Islander women were sought for involvement; however, women could not be found at the time.

Testing of resources

To ensure the resources developed were acceptable to Aboriginal women across a range of Aboriginal communities, yarning circles were held during September and October 2016 in NSW, SA and Qld. The ACCHS that had expressed interest in the upcoming pilot study hosted the yarning circles to ensure the piloted project is appropriate to the partnering communities. By including only the services that would go onto partner with the pilot intervention, the process of testing resources also allowed the researchers to better understand the

Table 1 – Beliefs and myths reported in previous research and how these are addressed in the Aboriginal women's educational resources from ICAN QUIT in Pregnancy.[a]

Belief/myth	How these were addressed in resources
1. Lack of visibility of harm • Smoking is not harmful in pregnancy • No obvious harmful effect from smoking on babies means they are healthy	Video content with Aboriginal OBGYN Dr Marilyn Clarke addressing this myth. Dr Clarke explains the visible and non-visible harms to the baby because of smoking during pregnancy. The brochure mentions that some of these health effects may not be visible or obvious at birth. A guided conversation with an HP on the harmful effects of smoking is incorporated in the flip chart with positive images of Aboriginal women/Aboriginal women with babies and short, non-judgemental questions on the patient's side of the flip chart to encourage the conversation. Breath carbon monoxide readings will be taken by the health provider to increase awareness and knowledge of effects of smoking on both the mother and baby.
2. Extenuating circumstances for smoking • If others smoke around you when you are pregnant, you may as well smoke yourself • It is OK to smoke if you are stressed, and smoking is a good way to deal with stress • Smoking in pregnancy keeps birth weight low if you are prediabetic	Smoking triggers brochure addresses extenuating circumstances for smoking and offers space for discussing and writing alternatives to smoking at this time. Video content of two Aboriginal women explaining their smoking triggers and social and community influences on smoking is included in this brochure. This is used to make the women not feel alone in this journey and support the engagement in conversation with their health provider to address these triggers. Flip chart has a section asking women 'what do you think will be some of the challenges for you trying to quit smoking?' to support the engagement of conversation to address these circumstances for better smoking cessation planning. The flip chart includes a section on smoking triggers and prompts the HP how to engage women in a conversation to address triggers and suggested actions a woman can take to prepare for these triggers and social situations to remain smoke free. A graph is included in the flip chart to show the association between nicotine levels and stress, encouraging the health provider to engage in a conversation of how NRT can support the woman's stress that is related to nicotine withdrawal symptoms. Video content is included in the smoking in pregnancy brochure with OBGYN Dr Marilyn Clarke addressing the following myths: • Easier to give birth to small baby • Babies of smokers are fine • Stress of quitting can harm me and my baby
3. Perceptions of harm reduction • Cutting down smoking in pregnancy is sufficient to avoid smoking-related health problems for mother and child • It is OK to resume smoking after birth • Only new borns or young children are susceptible to the harms of environmental tobacco smoke (ETS)	The smoking in pregnancy brochure emphasises the importance of quitting and not just reducing; this is reinforced by OBGYN Dr Marilyn Clarke in myths video: • Stress of quitting can harm me and my baby Flip chart includes a key note: 'emphasise that cutting down is not enough because pregnant smokers who just cut down may compensate by taking deeper breaths, smoking more from each cigarette and taking in the same amount of harmful chemicals'. The flip chart has a section on relapse and postbirth to support the engagement of women in the conversation of smoking cessation planning to include after birth. The brochure smoke-free home includes information on how to make your home smoke free and has a video explaining how to do this with your family and community visiting. Flip chart has a section for planning a smoke-free home and car, smoke-free home stickers are also given to women to use.
4. Dangers of quitting and/or treatment • NRT could make you want to smoke more, and/or NRT is harmful for the baby	Flip chart includes several sections explaining NRT including the following: • What is the difference between a cigarette and NRT? • HP side: risk–benefit assessment of using NRT in pregnancy • HP side: explaining how to use NRT (length of time, preference for oral forms first, if using a patch, taking it off at night) • HP side: 'NRT myths and suggested responses page' • Women's side: photo and wording promoting trying 'going cold turkey first, if unsuccessful NRT could help'. • Women's side: 'people who use NRT are 2–3 times more likely to have success quitting than people not using anything' • Photos of Aboriginal women using different forms of NRT • Photo of an Aboriginal woman with NRT and wording 'what do you think about NRT?' to encourage further conversations between the woman and her HP

OBGYN, obstetrician/gynaecologist; NRT, nicotine replacement therapy; HP, health provider; ICAN, Indigenous counselling and nicotine.
* Video content refers to culturally appropriate videos developed and made accessible through Layar augmented reality phone app; women scan the brochure with their smart phone to have video content upload on the phone https://www.layar.com/.
[a] Adapted from table 2 in Gould et al.,[34] with permission of authors.

communities they will be working with and build stronger relationships with the community and services. The yarning methodology used incorporated the following: social yarning, research topic yarning and collaborative yarning.[41] When women entered the room for the yarning circles, conversations began with a social yarn, establishing relationships and building trust between the women and the female researchers (M.B., Y.B.-Z., non-Indigenous medical practitioner and researcher). The research process and purpose was then introduced to the women through research topic yarning. This process built interest in being involved in the conversations and encouraged the women to be open and honest. The final phase of collaborative yarning saw multiple participants actively engaging and sharing their ideas and opinions. This collaborative yarning process is what is reported and discussed in this study. The social and research topic yarning was not recorded or documented as it was used to build a culturally safe space for Aboriginal women to engage in research. Any important discussions that arose in the social or research topic yarning were reflected on during the collaborative yarning process by the women and captured in the audio recordings of the yarning circle.

Participants and setting

Aboriginal women were recruited for the yarning circles through the three partnering ACCHS in NSW, SA and Qld using purposive sampling to address a range of participant ages. Aboriginal women were recruited by staff at the ACCHS through a promotional flyer. Sample size was 8–10 women in each of the three sites. This is consistent with the yarning methodology,[36] acknowledging that high numbers could impact the ability for all views to be heard in the allocated time. The eligibility criteria included Aboriginal and/or Torres Strait Islander women, aged 16 years or older, smokers and non-smokers, mothers and expectant mothers and elder women. A $20 gift voucher was provided to each participant as reimbursement for their time. Yarning circles lasted approximately 1 hour at each service and incorporated a morning tea. Yarning circles were facilitated by M.B., an Aboriginal PhD student and Y.B.-Z., a medical doctor and PhD student.

Data analysis

Audio recordings were transcribed by a professional agency. Transcribed data were coded using Nvivo 11 software by M.B. and Y.B.-Z. Analysis of predetermined themes of attraction, comprehension, cultural acceptability, graphics and layout, persuasion and self-efficacy were analysed by M.B. and checked by Y.B.-Z. A further inductive analysis was conducted independently by each researcher and then discussed to determine emergent themes.

The findings of the focus groups were presented to the ICAN QUIT in Pregnancy project governance team (both Aboriginal and non-Aboriginal researchers) and Stakeholder and Community Aboriginal Advisory Panel (SCAAP; two of the codeveloping ACCHS maternal health staff and CEOs). Ideas were generated, and agreement was sought for changes to be made to the resources.[38] A community report was developed and approved by NSW Aboriginal health and medical research council (AH&MRC) ethical committee and then distributed to each site articulating overall results from the evaluation process and yarning circles and agreed changes to the resources to be used for the pilot study.

Results

Twenty-four Aboriginal women were recruited: n = 10 (NSW), n = 9 (SA), n = 5 (Qld) including one pregnant woman, 15 mothers and eight elders across the communities.

Predetermined themes were the following: attraction, comprehension, cultural acceptability, graphics and layout, persuasion and self-efficacy. Further themes that emerged were make resources more interactive, tell me more and non-pharmacological approaches. The women across NSW, SA and Qld had similar comments on resources. There were no conflicting comments, but the last theme was represented by only two states (NSW and Qld).

Predetermined themes

Graphics and layout influenced attraction

Across the three communities, the importance of attraction of resources was discussed at length. Each of the three communities stated that bright colours, photos and artworks were important to make materials attractive and have them picked up by the women, or even their children, in the waiting room. It was suggested not to make the resources look *'too official'* (SA); this includes *'no white background'* (SA). The importance of the wording on the front of the brochure and opening lines were discussed as attracting women to engage with the resource.

> *When I pick up a brochure out here and I read the first line, if I don't like it, I put it down. (NSW)*

The use of photographs of Aboriginal women and babies was attractive to all communities. *'You will be drawn to them, because they see it and then they'll be interested in them.' (Qld).*

Comprehension

To overcome barriers in comprehension, the inclusion of video through augmented reality was used; however, women had difficulties using this technology. Issues included the lack of Internet and phone credit, trouble downloading the phone app via QR code, and trouble with scanning the brochure and having a successful upload of the video. To overcome the technical difficulties, the groups were shown the video content of the brochures. The inclusion of videos explaining medical content was well received across communities.

> *If they can't read, a video is the option isn't it! (Qld)*

> *That is so cool. (NSW)*

Persuasion and self-efficacy

Women's remarks on whether the resources would persuade them to make a quit attempt diverged into conversations on how to support their self-efficacy to make a quit attempt. When asked if the resource might persuade them to make a quit attempt, one woman replied: '*I don't really look that much I just go 'Doctor's hand out. Throw away' (SA)*.

Women wanted to maintain ownership and control of their quitting process and made recommendations to alter resources to include notes pages they can write on during conversations with their HPs. The inclusion of blank quit plans '*… put the quit plan in there' (NSW)* and to address smoking triggers by having a page with some options to try as an alternative to having a smoke '*tick I'll go for a walk, or tick I'll have a glass of water' (SA)* were suggested. Women suggested that through this engagement and ownership of the process, they are more likely to use the resources '*That could be incentive for them to take the brochure with them too.' (NSW)*.

Cultural acceptability

The cultural acceptability of the resources was integrated in all other predetermined and emerging themes as the primary objective was to test the acceptability across Aboriginal communities. In particular, women reflected on the use of Aboriginal art, colours, photographs and visual layout. The resources used imagery and videos of Aboriginal women from NSW, NT, VIC and a Torres Strait Islander doctor. Women across the three communities were happy with the range of images used and stated that they were culturally acceptable in their communities. '*It's very nice…. It's good …* Yeah I *like it … it's awesome'* were the brief responses offered. While the women in all communities suggested the use of art, they also agreed that the use of art rather than photographs can be problematic across communities, and the use of images of women and their babies has potential for wider acceptability.

> *I think they're fine. People will be drawn more to them because they have babies on the front (Qld)*.

When asked if there were any changes we should make to the resources to make them more culturally acceptable, the women did not suggest further changes. '*There's nothing negative to say about it' (Qld)*.

Emergent themes

Make resources more interactive

Women described the wide range of brochures and resources available at their ACCHS already. Particularly during pregnancy, women are given numerous health resources, and they recommended that resources be made more interactive and innovative.

> *Having one brochure with all the information in there, you could create your own website and you could go on and choose… (SA)*

All three communities recommended incorporating the range of brochures into one booklet or calendar for women to take home.

> *…instead of brochures, calendars, I need calendars in my house… you schedule doctors appointments so you would use it. (SA)*

> *It could be their pregnancy journal or it could be their quitting smoking journal. (NSW)*

Recommendations were made to add content to the suggested booklet to offer women something to do to address boredom and keep their hands busy while working through cravings, such as colouring pages '*… the motion (of colouring-in) is an addiction' (NSW)* or words games '*…things to do. We could put crosswords in there. Finder words where you circle them.' (NSW)*.

Women across the three communities liked the videos downloaded via the phone app; however, the programme did not always work successfully. Women appear to have interest in the incorporation of educational resources within social media.

> *On Facebook at the moment they seem to be having a lot of — to do with giving up smoking — the stages once you start quitting, in 20 minutes you're actually — how your body changes straight away. They do this week by week process once you start, and I quite like that idea. (Qld)*

Phone apps were also considered to be more user-friendly.

> *Can there be just a specific app with all the videos on it rather than to scan? (NSW)*

The use of the developed videos at the ACCHS waiting room was raised by women in SA and supported across the other sites. Using the time women and their families are waiting for doctors' appointments could support education on smoking during pregnancy, preparing and encouraging the women to discuss the subject with their doctor.

The incorporation of women's photos and videos were well received by all communities; however, the addition of real stories to inspire a quitting journey was requested.

> *…you could have that photo of that girl, personally like how she quit and how she managed to get there. (NSW)*

> *…(if) it's real, you could connect. (SA)*

Tell me more

Women across all communities asked for resources to give them more information to build their knowledge and understanding of smoking during pregnancy.

> *Is there information on tiny babies? Because you hear about it but what does it mean? (SA)*

While all women understood smoking is harmful and smoking while pregnant can affect the growing baby, they requested more scientific content to be explained to them. The use of in-built videos was used to explain this content; however, owing to barriers using the technology, this information was also suggested to be written.

I wonder how many smokers would have family who have asthma as well. So one page specifically on smoking and asthma. (NSW)

Do you reckon you should have one page or something that you could show people what affects they do have on babies? .....to show her images of babies, of what happens to them when they do smoke, for her to actually realise. (Qld)

Non-pharmacological approaches

Women in NSW and Qld requested the addition of non-pharmacological approaches to smoking cessation to be incorporated in educational resources to complement the intervention.

You could even have some websites on meditation, like recommended meditation of such. (NSW)

So breathing ideas, breathing techniques, and just being active with my fingers, with my phone. (Qld)

The inclusion of non-pharmacological approaches alongside pharmacotherapy options was requested to overcome some women's concerns about trying NRT to support a quit attempt. Women in Qld were particularly hesitant to use NRT.

I was just thinking that these products, I wouldn't use them. I'd think about the side effects. (Qld)

Women in Qld also requested more encouragement and empowerment.

I would prefer more information about more positive, encouraging, motivating information, rather than putting stuff like this, because each one of them has side effects. You're still putting nicotine into your body in the long run. Cancer, when you think about it. (Qld)

Discussion

The ICAN QUIT in Pregnancy educational resources were codeveloped with Aboriginal communities and researchers and pretested through yarning circles led by an Aboriginal researcher (M.B.) with 24 Aboriginal women across NSW, SA and Qld. Through yarning circles, women shared their insight for the development of meaningful and useable smoking cessation resources, with the potential to be acceptable across these states. Women called for resources to be more interactive, with enhanced scientific information and suggestions for non-pharmacological approaches to smoking cessation. While the resources were developed with Aboriginal and non-Aboriginal HPs at the ACCHS, only one Aboriginal pregnant woman consented to being involved as a consumer in the process at the time (although others were sought). The yarning circles raised new insights into how to enhance the resources to make them more acceptable and useable by Aboriginal pregnant women not just the health providers. This was performed in a timely manner so the changes could be incorporated into the final version of the resources.

After consultation and approval from our SCAAP and WP, several amendments were made to the resources which were all incorporated into one booklet. Colouring-in pages with Aboriginal art from a local artist, Saretta Fielding, were added as well as sections for planning cessation, i.e. triggers '*what can I do for 1 min?*' '*what are my triggers*', try '*stop, think, do*', 4 D's to support periods of withdrawal. Blank quit plans, '*things you could try to quit smoking*', with a link of resources already available including Quitline, Quit for you Quit for two mobile app, Quit coach were added to guide women to what other resources are available to them on their quitting journey. Building on ownership and control of the quitting process, a section for writing down the reasons for wanting to quit smoking and reasons for not wanting to quit smoking were added. Videos via 'Layar' technology remained in the resources to continue to trial this technology with Aboriginal communities; however, to address the issue of the Internet access, a video loop combining all videos was created for the waiting room of the ACCHS. The video loop also incorporated a local Aboriginal mother's story of smoking and becoming pregnant through each of her three pregnancies.

Developing effective health promotion interventions and resources for Aboriginal people requires more than a 'culturally appropriate' adaptation of mainstream resources.[42] Aboriginal community conversations and partnerships for developing health promotion are critical to implement ethical and effective strategies to enhance the health and well-being of First Nation people.[4,43–45] Resource development with Aboriginal women from Mowanjum community reported enhanced pride and self-esteem of local people through involvement in their own health promotion resources[46] and allows for meaningful health promotion to effect positive health behaviour change.

Tailored behaviour change resources such as pamphlets are effective in the general population,[26,47] and suggestions have been made to update these materials with digital technology,[47] which we tested with the use of the 'Layar' mobile application. While the evidence for the effectiveness of social media and phone apps for health promotion remains weak, in the Aboriginal population, they are acknowledged as having great potential.[48] The current use of social networks to integrate health promotion by many Aboriginal communities[28] would benefit from further investigations and appropriately designed trials, especially for smoking cessation,[49] to build the much needed evidence base and determine effectiveness. It has been previously reported that Aboriginal smokers want ownership and control over their quitting process,[20,50] and the incorporation of resources that enhance self-efficacy (for example, in self-help resources) have been reported to be beneficial in the general population.[51]

The use of NRT during pregnancy is safer than smoking and should be offered to pregnant women who smoke.[16] Salient messages and increased awareness of pharmacotherapy have been suggested to encourage smoking cessation during pregnancy.[52] Limited evidence is available on the effectiveness of the implementation of non-pharmacological interventions to support smoking cessation in Aboriginal communities. In the general population, successful uptake of non-pharmacological cessation options during pregnancy of complementary and alternative medicine (such as

mindfulness, yoga and acupuncture) has been reported in white high socio-economic populations;[53] however, the effectiveness of some of these approaches is as yet uncertain.[27] Psychosocial interventions (including counselling, feedback and incentives) during pregnancy have been reported to be effective in reducing the proportion of babies born with low birth weight.[14] A randomised control trial of the mindfulness techniques to support smoking cessation reported a reduction of cigarette use, with a trend to greater abstinence[54] and may be appropriate to explore with Aboriginal populations.[20] The incorporation of non-pharmacological approaches in educational resources during pregnancy may also be relevant for HPs who have been reported to have continued concerns regarding the safety of NRT during pregnancy.[55] Evidence-based practices by HPs can incorporate integrative approaches: together these may be important to support smoking cessation during pregnancy.[20,22,56]

A wide range of health promotion programmes and resources are developed for Aboriginal people each year. However, the development and evaluation of these resources are inconsistently designed or reported.[57] It is imperative that programmes are developed in partnership with Aboriginal researchers and communities to ensure research conducted in those communities is meaningful and acceptable for Aboriginal people.[4,43–45] Developers of health promotion resources and interventions should engage in *Giri-nya-la-nha* (talk together) during development to ensure appropriateness across diverse Aboriginal communities. Sharing the process of resource development and learning can better inform future health promotion and interventions.

The use of photographs of Aboriginal women, babies and HPs from a range of communities may provide wider acceptability of resources. Women enjoyed the incorporation of videos to explain medical content and engage in real stories to inspire their own journey to quitting. The development of health resources for Aboriginal women should consider interactive mediums and digital technology to give multiple purposes and enhance self-efficacy and decision-making.

Further exploration of non-pharmacotherapy cessation interventions should be explored for Aboriginal people with an acknowledgement of the desire by Aboriginal people to own the process of smoking cessation and build on empowerment rather than didactic approaches.

Author statements

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Ethical approval

The study was approved by the University of Newcastle Human Research Ethics Committee (HREC) (Reference H-2015-0438); by AH&MRC Ethics Committee (Reference #1140/15); by AHREC Ethics Committee (Reference #04-16-652); and by the Far North Queensland Human Research Ethics Committee (HREC) (Reference #16/QCH/34–1040). It was also ratified by the HREC of University of Adelaide and James Cook University.

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Competing interests

The authors declare that they have no conflict of interests.

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