Feasibility of audio-recording consultations with pregnant Australian Indigenous women to assess use of smoking cessation behaviour change techniques

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Abstract

Abstract Background Behavioural counselling is an effective method to improve smoking cessation rates during pregnancy. It is not always clear whether counselling is delivered as per guidelines. Audio-recordings of consultations have been used previously to assess fidelity of the intervention delivered. This has been performed mainly in specialized smoking cessation services for the general population. This study aimed to assess the feasibility of audio-recording smoking cessation counselling between health providers and pregnant women as part of an intervention in Aboriginal primary care settings. A secondary aim was to explore the number and type of behaviour change techniques delivered. Methods A nested feasibility study within a larger intervention trial in six Aboriginal Medical Services. Recruited health providers and pregnant women were asked to agree or decline audio-recording their smoking cessation related consultations, pre and post intervention. Data collected included percentage providing consent to audio-recording; number of recordings performed, type of health provider performing the consultation, and date (pre/post intervention). Transcribed recordings were coded by two researchers. At the end of the trial, interviews were conducted to assess the acceptability of the study. Data relevant to the audio-recordings was extracted. Results Two services provided seven recordings, all pre-intervention. Of 22 recruited women, 14 consented to being audio-recorded (64%) and five provided recordings; of 23 recruited health providers, 16 agreed (69%), and two provided recordings. Qualitative data suggest health providers found audio-recording difficult to remember. Health providers spend two minutes discussing smoking (range 00:47-03:47 minutes), and used few behaviour change techniques for each consultation (average 4 behaviour change techniques, range 2-8). Conclusions Audio-recordings of smoking related counselling were not feasible as planned. Future research will need to explore acceptable methods to assess behaviour change techniques use in primary care, and specifically in Aboriginal health services. Trial registration: ACTRN 12616001603404

Background

Tobacco smoking during pregnancy remains a global public health issue, specifically among disadvantaged populations such as minority groups, those with low socio-economic status and Indigenous populations.[1] Smoking rates among Australian Aboriginal and Torres Strait Islander pregnant women significantly declined in recent years, but are still threefold higher than the general population (42% versus 11% in 2016).[2]

Behavioural counselling is an effective method to improve smoking cessation rates during pregnancy.[3] A meta-analysis of 30 studies found that counselling increased smoking cessation rates by 44% (RR 1.44, 95% CI 1.19 to 1.73).[3] Clinical guidelines recommend primary care health providers (HPs) provide brief behavioural counselling.[4, 5] Guidelines sometimes use a broad term such as ‘Assist with counselling’ without further details. Most smoking cessation interventions do not provide a full description of what was included as part of counselling.

Recent novel research has tried to articulate the ‘active ingredients’ of behavioural counselling, defined as behaviour change techniques (BCTs). A BCT taxonomy has been developed and validated.[6] It is not yet clear which BCT combinations are effective in what context, setting and sub-populations.

Forty-three possible BCTs were described for smoking cessation,[7] several of them have been suggested as ‘evidence based’ (defined as included in at least two interventions found to be effective in randomised controlled studies, and/or associated with biochemically validated abstinence).[8, 9] To date, only two studies focused on BCTs for smoking cessation in pregnancy, identifying 23 possibly effective BCTs.[10, 11]

Research on smoking cessation behavioural interventions has focussed on coding BCTs based on their description in published manuscripts or intervention manuals.[10, 11] A major limitation is fidelity, as it is not always clear whether BCT’s were performed as instructed. Few studies recorded consultations to analyse which BCT’s were employed; those that did were in specialised smoking cessation services.[8, 12] Analysis of recorded consultations has not yet occurred in primary care settings, nor been used to identify effective BCTs for smoking cessation among Indigenous people, including pregnant women.

The aim of this study was to assess the feasibility of audio-recording HPs-pregnant women’s smoking cessation behavioural counselling as part of an intervention in a primary care setting. A secondary aim was to conduct a preliminary exploration of the number and type of BCTs delivered as part of smoking cessation support to pregnant Aboriginal women.

Methods

Design: Nested feasibility study within a larger intervention trial – The Indigenous Counselling and Nicotine (ICAN) Quit in Pregnancy.(13-15) The ICAN Quit in Pregnancy trial aimed to test the feasibility of an intervention to improve HPs smoking cessation care with pregnant Aboriginal and Torres Strait Islander women who smoke in partnership with Aboriginal Medical Services.[13-15] As part of the ICAN Quit in Pregnancy trial, both HPs and pregnant women were recruited and followed (November 2016 to September 2017). HPs were asked to complete a pre and post intervention survey. Pregnant women were asked to complete surveys and undergo breath carbon monoxide measurements (for smoking status biochemical validation) at baseline, 4-week and 12-week follow-up visits. A full description of the ICAN Quit in Pregnancy trial methodology and results has been previously published, including adherence to the CONSORT guidelines. (13-15)

Aboriginal Advisory Panel: The ICAN Quit in Pregnancy trial was developed collaboratively with two Aboriginal Medical Services.(16) A Stakeholder and Consumer Aboriginal Advisory Panel guided the development and implementation of this study to ensure Aboriginal community ownership and cultural sensitivity; At least one member from each Aboriginal Medical Service was invited to participate on this panel.[16] Full details can be found elsewhere.[13, 14] The Aboriginal Advisory Panel also guided the development of the nested study.

Setting: Six Aboriginal Medical Services – one urban and five regional - in three Australian states (New South Wales, Queensland and South Australia).

Procedure: HPs and pregnant women recruited to the ICAN Quit in Pregnancy trial were asked, as part of the consent process, to agree or decline an additional option of audio-recording the part of their consultations relating to smoking cessation. Defining the audio-recording as an additional option was deemed necessary and more appropriate by the Stakeholder and Consumer Aboriginal Advisory Panel as it was felt that audio-recordings might be perceived as more intrusive by Aboriginal women and might deter them from consenting to the ICAN Quit in Pregnancy trial. A staff member from each service was trained as a research facilitator, and provided with two audio-recorders. Taking into consideration that pregnant women discuss multiple pregnancy and non-pregnancy related issues during their visits to the Aboriginal Medical Service, the Stakeholder and Consumer Aboriginal Advisory Panel found it to be unacceptable to record the entire session in order to extract only the smoking related counselling.

Therefore, staff were instructed to record only the content regarding smoking during any visit of the recruited pregnant woman, if both HP and the woman had consented to recordings. This was done to encourage pregnant women's consent to the recording and protect privacy for other issues. All content was de-identified regarding to the women and HPs. Research facilitators were requested to record a mix of initial and follow-up consultations (ie, pre-quit attempt, and post-quit attempt up to the 4-week visit) with at least three pregnant women (expected recruitment for the ICAN Quit in Pregnancy trial was 10 eligible consenting women per service)[13], for a total of nine audio-recordings per service.

Participants: HPs were eligible if they consulted with pregnant women either for pregnancy confirmation, antenatal care and/or routine care. Pregnant women were eligible if they were ≤ 28 weeks gestation; Aboriginal and/or Torres Strait Islander or expectant mothers of Aboriginal and/or Torres Strait Islander babies; aged ≥16 years old; and smoked tobacco at any level of consumption. Participating women received up to $60 AUD as reimbursement for their time for ICAN QUIT in Pregnancy trial related visits; Women or HPs did not receive additional reimbursement for audio-recording consultations.

Qualitative Interviews: At the end of the ICAN Quit in Pregnancy trial, semi-structured interviews were conducted with staff from the services (including managers, research facilitator and HPs) to assess the acceptability of the study and intervention. No direct questions regarding feasibility and acceptability of audio-recording smoking cessation related consultations were included; However, a general question was included regarding what study procedures worked well and/or what were the more challenging aspects.

Analysis:

Feasibility measures: were collected by the research facilitator, including proportion consenting to audio-recording; number of recordings performed, profession of HP (general practitioner/midwife/nurse/Aboriginal Health Worker) performing the consultation, and date (pre/post intervention).

Qualitative interviews

Interviews at the end of the ICAN Quit in Pregnancy trial were audio-recorded and transcribed. Data relevant to the feasibility and acceptability of audio-recording smoking cessation related consultations was extracted.

Behaviour change techniques: Recordings were transcribed by a professional service and coded independently by two certified BCTs coders (YBZ and ES). Patients' responses to the HP were not coded. Coding was based on the Michie et al 2010 taxonomy of smoking cessation BCTs v1.[7, 10] Initial inter-rater agreement levels (% positive agreement) was 48% (calculated by identifying the proportion of all BCTs within a transcript that were recognized by both coders). Discrepancies were resolved through discussion, until agreement reached 100%.

Ethics

The study was approved by the following ethics committees: 1) University of Newcastle Human Research Ethics Committee (HREC) (Reference H-2015-0438); 2) Aboriginal Health & Medical Research Council HREC (Reference #1140/15); 3) South Australia Aboriginal Health HREC (Reference #04-16-652); and 4) Far North Queensland HREC (Reference #16/QCH/34 – 1040). All participants provided and signed an informed consent to participating in the study.

Results

Feasibility measures

In total 22 pregnant women were recruited to the ICAN QUIT in Pregnancy trial, 14 provided consent to audio-recordings (64%). Of 50 recruited HPs, we have data regarding agreement to audio-recording for 23, with 16 providing consent (69.5%, 32% from all HPs).

Two Aboriginal Medical Services (of six) provided seven audio-recordings, from two HPs and five women, all from the pre-intervention period. One service provided three recordings, with three pregnant women (one recording per woman), all with the same midwife. The second service provided four recordings, with two women (two recordings per woman), all with the tobacco action worker (a HP employed to assist with smoking prevention and cessation activities), who was also the research facilitator.

Qualitative Interviews

A total of eighteen interviews were conducted from all six Aboriginal Medical Services at the end of the ICAN Quit in Pregnancy trial. The topic of audio-recording consultations was discussed in two interviews, one with the research facilitator at a service that provided three audio-recordings, and another with the manager of a service that did not provide any audio-recordings.

Women's consent to the audio-recordings varied considerably, with one service reporting having no issues *"even signing video - voice recording consents, you know, they weren't finicky about it"*, and the other service stating none of the women found it acceptable *"No, they didn't want it recorded"*.

In the service that did provide audio-recordings, these were still considered a difficult task to remember *"The doctors and midwives quite often forgot to use voice recorder. The GPs didn't remember very often that they had the voice recorders. Obviously very busy as well, so that, you know, it's understandable"*.

Behaviour Change Techniques

On average, the two HPs spend two minutes per consultation discussing smoking with the pregnant woman (range 00:47-03:47 minutes). They used few BCTs for each consultation (average 4 BCTS, range 2-8) (Table 1). The most common BCTs used were 'Building general rapport', 'General communication approaches' and 'Information gathering and assessment'. Table 2 (see additional file 1) provides a summary of all of BCTs used, with example quotes.

In one consultation the HP was passive in response to the woman's enquiry, not taking advantage of her interest to further the discussion around smoking cessation

Woman: *"Hopefully I can quit once the baby is born. I mean I'd rather quit before the baby is born but…"* HP: *"Yeah well we see how it goes. You seem like you're giving it… something in here might help."* Woman: *"oh is that the smoking program. Smoking cessation program?"* HP: *"yes it is"* Woman: *"Isn't it kind of like this?"* HP: *"it's too early to be asking questions"*

Discussion

Main findings

In this nested study within six Aboriginal Medical Services, using audio-recording of HPs-pregnant women's smoking counselling was not feasible as planned. Despite a reasonable rate of agreement to the consultations being recorded, very few recordings were obtained, and all of them in the pre-intervention trial phase (i.e. pre-training). Analysis of the few recordings that were provided showed that HPs devoted little time to smoking cessation support, and used few evidence based BCTs.

Comparison with the literature

Audio-recording of HP-patient visits as a way to assess actual provision of care and communication has been used successfully in the past, including in the context of smoking cessation counselling at specialist services.[8, 12, 17] Lorencatto et al analysed 15 transcribed audio-recordings from three smoking cessation services to develop the original methodology for specifying BCTs in practice.[8] Another study used 34 transcripts of audio-recordings from two smoking cessation services to examine fidelity of treatment manuals and actual practice.[12] To the best of our knowledge, these recordings were of the entire patient visit, and have not been used specifically with pregnant women, or in an Indigenous

context. In our study, the entire visit could not be recorded (following the advice of our Stakeholder and Consumer Aboriginal Advisory Panel). This may have reduced the practicality of obtaining audio-recordings as HPs needed to stop the visit artificially and remember to start (and stop) recording when discussing smoking.

Smoking cessation support during pregnancy is suboptimal,[18] with previous research suggesting that HPs might be concerned that raising the issue will damage their therapeutic relationship; therefore HPs put an emphasis on building a positive rapport with the women, being non-judgmental and supportive.[19] The findings from this study provide further support for this as 'Building general rapport' was one of the most common BCTs used. BCTs that were found in previous research[10, 11, 20] to be associated with cessation success such as 'Facilitate barrier identification and problem solving', 'Facilitate action planning/identify relapse trigger', and 'Facilitate goal setting' were not used. Future interventions with HPs should focus on skills training of 'how' to assist pregnant women to quit using other BCTs that have been suggested as effective in pregnancy,[11, 20, 21] while being non-judgmental and supportive. The ICAN QUIT in Pregnancy training laid emphasis on these skills; unfortunately no recordings were taken to inform whether the training had been successful or HP fidelity with the approach.

Using more BCTs has been previously suggested to yield better results.[20] Time is perceived as a leading barrier to providing adequate smoking cessation in primary care.[19] In this study, HPs spent on average only two minutes on their smoking related consultation. Therefore, it is essential to understand which combination of effective BCTs would be feasible in this busy setting.

Strengths and Limitations

This is the first study that explored smoking cessation related BCTs used in primary care settings with pregnant Aboriginal and Torres Strait Islander women. It is not possible to generalize the findings from the few audio-recordings that were collected. There may have been longer consultations around smoking that included other important issues impacting smoking that women did not want recorded. Other HPs may have used other BCTs or more BCTs. Furthermore, as only pre-training audio-recordings were collected, it was not possible to explore whether the intervention had any impact on the length or BCT content of the consultations.

Implications for future research and practice

The results of this study will be used to inform a larger cluster randomized controlled study (SISTAQUIT®), in up to 30 Aboriginal Medical Services, which is also attempting to collect audio-recordings of smoking related counselling.

Suggested changes to increase the feasibility of obtaining recordings could include:

1. Implementing a computerized system to flag participating woman that agreed to be audio-recorded, including a reminder at the beginning of the visit.

2. Supplying each service with more audio-recorders (one for each HP).
3. Providing an incentive for both HP and the women to perform the recording.
4. Exploring other ways that might be more feasible and acceptable to the communities such as using observation (without audio-recording) by training the research facilitator in BCTs identification.
5. Using HPs self-report of BCTs with a template.

Conclusion

Recording HPs consultations with pregnant women about their smoking was not feasible as planned. Analysis of the few recordings that were provided showed that HPs devoted little time to smoking cessation, and used few evidence based BCTs. Future research will need to explore feasible ways to assess BCT's use in primary care, and specifically in Aboriginal health services, including which BCT's combination would be the most effective in time-deprived primary care settings.

List Of Abbreviations

BCTs	Behaviour Change Techniques
HPs	Health Providers
ICAN QUIT in Pregnancy	Indigenous Counselling and Nicotine Quit in Pregnancy

Declarations

Ethics approval and consent to participate

The study was approved by the following ethics committees: 1) University of Newcastle Human Research Ethics Committee (HREC) (Reference H-2015-0438); 2) Aboriginal Health & Medical Research Council HREC (Reference #1140/15); 3) South Australia Aboriginal Health HREC (Reference #04-16-652); and 4) Far North Queensland HREC (Reference #16/QCH/34 – 1040). All participants provided and signed an informed consent to participating in the study.

Consent for publication

Not applicable

Availability of data and material

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Competing interests

YBZ has received fees for lectures from Pfizer Ltd Israel (2012-2015, 2017-2019) and GSK Consumer Health Israel (2019) (both distributing smoking cessation pharmacotherapies in Israel). She has not received any fees from pharmaceutical companies in Australia. No other co-authors have conflicts of interest.

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Authors' contributions

YBZ conceived and designed the study with input from GG, MB, and BB. YBZ led the data collection, analysis plan and wrote the manuscript. MB advised on Aboriginal community consultations and adherence to ethical guidelines to research with Aboriginal communities. ES assisted with the data analysis. GG oversaw the study. All co-authors critically reviewed and approved the final manuscript.

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Tables 1 And 2

Table 1: Behaviour change techniques used in audio-recorded consultations as part of ICAN QUIT in Pregnancy trial

Consultation number and time recorded (minutes)	Behaviour change techniques used
Service #1 – consultations with midwife	
Patient #1 (02:05)	Six BCTs: · RC1 Build general rapport · RC2 General practitioner communication approaches · RC6 Offer/direct towards appropriate written materials · BM3 Provide feedback on current behaviour and progress · BM11 Measure CO and explain the purposes of CO monitoring · A1 Advise on stop smoking medication
Patient #2 (00:48)	Three BCTs: · RC7 Information gathering and assessment · BM5 - Provide normative information about others' behaviour and experiences · BM9 - Facilitate identification of reasons for wanting and not wanting to stop smoking
Patient #3 (03:47)	Four BCTs: · RC7 - Information gathering and assessment · A1 - Advise on stop smoking medication · A3 - Ask about experiences of stop smoking medication that the smoker is currently using · BS11 - Advise on avoiding social cues for smoking
Service #2 – consultations with tobacco action worker	
Patient #4 first visit (02:55)	Five BCTs: · RC1 Build general rapport · RC2 General practitioner communication approaches · RC7 Information gathering and assessment · BM3 Provide feedback on current behaviour and progress · BM7 Provide rewards contingent on effort or progress
Patient #4 second visit (00:47)	Two BCTs: · RC1 - Build general rapport · BM13 -Create or reinforce negative associations
Patient #5 first visit (01:13)	Three BCTs: · RC1 Build general rapport · RC7 Information gathering and assessment · BM7 Provide rewards contingent on effort or progress
Patient #5 second visit (02:25)	Two BCTs: · RC1 - Build general rapport · RC7 - Information gathering and assessment

BCTs – Behaviour Change Techniques

Table 2: A summary of all of the behaviour change techniques (BCTs) used with examples of quotes

Behaviour change technique	Description of Behaviour change technique	Example quotes	Overall number of times BCT was used
RC1 Build general rapport	Establish a positive, friendly and professional relationship with the smoker and foster a sense that the smoker's experiences are understood	*"we've got some strategies to help with that (smoking cessation"; "that's a good way to think about it"*	5
RC2 General practitioner communication approaches	Communication that includes one or more of the following: Eliciting and answering questions; Using reflective listening; Summarizing information, and confirming client decisions	*"And (name of aboriginal health worker) was saying that that is inspiring you to change your smoking?"; "So you've sort of gone along the whole reducing (smoking)?"*	5
RC6 Offer/direct towards appropriate written materials	Distinguish what are, and are not, appropriate written materials and offer/direct clients to these in ways that promote their effective use	*"… some resources on quitting and deciding to quit and the nicotine options that are there"*	1
RC7 Information gathering and assessment	Any information gathering that provides the practitioner with the knowledge needed from the client for appropriate behaviour change techniques to be delivered. Includes one or more of the following: Assessing current and past smoking behaviour; Assessing current readiness and ability to quit; Assessing past history of quit attempts; Assessing withdrawal symptoms; Assessing nicotine dependence; Assessing number of contacts who smoke; Assessing attitudes to smoking; Assessing level of social support; Assessing physiological and mental functioning	*"Smoking is currently 15 a day?"; "You've been thinking about quitting a lot, for a long time?"; "Have you got other family or friends who smoke around you?"; "So on average you've been smoking a bit less then?"; "So when you were up the hospital you didn't have any smokes?"*	8
A1 Advise on stop smoking medication	Includes one or more of the following: Explaining the benefits of medication, safety, potential side-effects, contra-indications, how to use them most effectively; Advising on the most appropriate medication for the smoker; Promoting effective use; Explaining how to obtain medications, enacting the necessary procedures to ensure the smoker gets their medication easily and without charge where appropriate	*"…instructions with Quick Mist Spray and then I've also given directions on how to use it because a lot of people have problems how to lift it up… you can have up to 15 sprays a day and it's 1mg. So that's the lowest one you can get."*	2
A3 - Ask about experiences of stop smoking medication that the	Asses usage, side effects and benefits experienced of medication that the smoker is currently using	*"Are you using any stuff instead of smokes, like any nicotine replacement therapy stuff?"*	1

smoker is currently using		*"How did you find it when you tried those (lozenges)? Did you find that you could cut back on the smokes with them?"*	
BM3 Provide feedback on current behaviour and progress	Give feedback arising from assessment of current self-reported or objectively monitored behaviour (e.g. expired-are CO) and/or progress towards becoming a permanent non-smoker	*"So for you to come in now and say 'I haven't got any smokes on me and I'm using this e-cig' that's a massive big difference from that first appointment when you came and seen me"*	2
BM5 - Provide normative information about others' behaviour and experiences	Involves providing information about how the smoker's experience compares with that of other smokers who are trying to quit, as to indicate that a particular behaviour or sequence of behaviours are common, or uncommon, amongst other smokers trying to quit	*"I actually hear a lot of mums say 'When I go out to have a smoke I tell the kids to keep away… And I go out of the house and I have five minutes just to myself.'"*	1
BM7 Provide rewards contingent on effort or progress	Give praise or other rewards for the effort the smoker is making in relation to smoking cessation and if the smoker has engaged in activities that aid cessation, such as correct medication use	*"That's really good" (in response to woman stating she was trying to reduce)*	3
BM9 - Facilitate identification of reasons for wanting and not wanting to stop smoking	Help the smoker to arrive at a clear understanding of his or her feelings about stopping smoking, why it is important to stop and any conflicting motivations	*"It's (smoking) keeping you sane. In what way is it keeping you sane?"*	1
BM11 Measure CO and explain the purposes of CO monitoring	Measure expired- air carbon monoxide concentration and explain to the smoker the reasons for measuring CO at different time points (e.g. before and after the quit date)	*"…the 23ppm… matches the frequent smoker level… and then the 5.66 FCO is here for the 'mother' column and that's sort of more the addicted smoker. So that's a bit higher, the amount of nicotine that's going through, isn't it?"*	1
BM13 - Create or reinforce negative associations	Present descriptions or labels that aim to generate negative emotional associations with smoking other than by providing information about the negative consequences of smoking	*"How did you find like people's perceptions and opinions if they saw you when you were pregnant with a smoke?.... The judgemental type thing? …. Have you ever had anybody actually say something to you?"*	1
BS11 - Advise on avoiding social cues for smoking	Give specific advice on how to avoid being exposed to social cues for smoking (e.g. explaining to friends that you have stopped and asking them not to smoke around you)	*"So what are you going to do if you go to their house and they're smoking?... if you've got the replacement things in your handbag that might help too?"*	1

Supplementary Files

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

- CONSORTChecklistYBZ.pdf