BMJ Open

Exploratory randomised trial of face-to-face and mobile phone counselling against usual care for tobacco cessation in Indian primary care: a randomised controlled trial protocol for project CERTAIN

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To cite: Panda R, Omar R, Hunter R, *et al*. Exploratory randomised trial of face-to-face and mobile phone counselling against usual care for tobacco cessation in Indian primary care: a randomised controlled trial protocol for project CERTAIN. *BMJ Open* 2022;**12**:e048628. doi:10.1136/bmjopen-2021-048628

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2021-048628).

Received 05 January 2021
Accepted 10 December 2021

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ABSTRACT

Introduction Despite widespread use of smokeless tobacco products by people within the Indian subcontinent, there is little awareness among Indians of its health hazards when compared with smoked tobacco. We hypothesise that mobile phone counselling will be feasible and effective for smokeless tobacco cessation intervention in India. This paper presents the protocol of the development and conduct of an exploratory trial before progression to a full randomised controlled trial.

Methods and analysis An exploratory randomised controlled trial will be conducted in urban primary health centres in the state of Odisha, India. A total of 250 smokeless tobacco users will be recruited to the study (125 in each arm). Participants in the intervention arm will receive routine care together with a face-to-face counselling intervention followed by advice and reminder mobile messages. The control arm will receive routine care, delivered by a primary care physician based on 'Ask' and 'Advice'. All participants will be followed up for 3 months from the first counselling session. The primary outcome of this trial is to assess the feasibility to carry out a full randomised controlled trial.

Ethics and dissemination Ethical approvals were obtained from the Institutional Ethics Committee of Public Health Foundation of India, Health Ministry's Screening Committee, Odisha State Ethics Board and also from University College London Research Ethics Committee, UK. The study findings will be published in a peer-reviewed scientific journal.

Trial registration number CTRI/2019/05/019484.

Strengths and limitations of this study

- Evidence on the effectiveness of smokeless tobacco (SLT) cessation intervention in primary care is scarce. The results of this study will inform on the feasibility of conducting an effectiveness trial in the future.
- Randomisation with allocation concealment, blinded assessment of outcome measures and registration of the protocol in the trial registry will minimise potential bias.
- Providing training to health professionals will lead to an improved understanding of the delivery of low-cost tobacco cessation interventions in primary care.
- The primary care physicians may get unmasked to the allocation of the participants during the course of the trial as the participants visiting the urban primary health centres may reveal the information to the physicians. There is a chance of biased results if physicians may deliver repeated face-to-face counselling services.
- The inclusion criteria include SLT users having a mobile phone, this may exclude a section of the SLT users who do not have a personal mobile phone like very poor or the elderly who do not use a mobile phone.

INTRODUCTION

Tobacco use is responsible for almost eight million deaths each year or a death every 6 seconds.[1 2] About 80% of 1.3 billion tobacco consumers across the globe live in low and middle-income countries (LMICs).[1] In LMICs like India, the tobacco problem is complex as the country has a diverse population with a mixture of cultures, religions and practices. The majority of the tobacco users in India use a variety of tobacco products—combustible, non-combustible or both. As per the Global Adult Tobacco Survey 2 (GATS 2), 28.6% of the adult population in India consumes tobacco (10.7% of smoking and 21.4% of smokeless), making it the second-largest consumer in the world.[3]

Widespread use of smokeless tobacco (SLT) products occurs in countries such as in

India and Bangladesh accounting for 232 of 248 million SLT users worldwide (i.e., from 21 countries).[4] SLT products such as *tambaaku*, *gurkha*, *zarda*, *khaini*, *mawa* and *pan masala* are widely used in many states in India as SLT consumption is culturally accepted and is considered common practice.[5] In India, SLT use is double that of combustible tobacco, making it the single most common form of tobacco used by men and women (29.6% and 12.8%, respectively).[5] According to GATS 2 survey, the state of Odisha was one where the largest proportion of adults consumed SLT products (43%) compared with the national average (21.4%).[6] Despite strong evidence of SLT[7] on cancer of the oral cavity, pharynx, oesophagus and also responsible for a large proportion of tobacco-related cancers in India, there is a misconception that SLT is relatively harmless .[8]

Primary care health professionals, the first contact for patients accessing help, play a key role in the health education of the hazards of tobacco. They are best placed to counsel against tobacco use and promote cessation. Studies on brief interventions by healthcare providers are effective in motivating tobacco users to quit tobacco.[9 10] A systematic review on SLT cessation intervention from both high-income countries (HICs) and LMICs showed that behavioural interventions are effective in achieving cessation.[11] However, the overburdened primary care physicians in India have limited time for counselling,[2 12 13] and it is also difficult to get users to attend follow-up visits as journeys to primary care clinics would incur a loss of income.[12]

In India, mobile phones are widely used in both rural and urban settings. India with 1173.7 million (98.2%) mobile phone users is the second-largest user base in the world.[14] Mobile phone subscribers in India increased from 1187 million in June 2019 to 1195.2 million by September 2019.[14] A meta-analysis of 104 studies including randomised trials and quasi randomised trials on the effectiveness of telephone counselling for smoking tobacco cessation showed significant but modest effect sizes in HICs.[15] Effectiveness increases with treatment intensity.[16] A review of 26 trials on smoking cessation demonstrated that automated text messaging interventions were more effective than minimal smoking cessation support (RR 1.54, 95% CI 1.19 to 2.00; I^2=71%; 13 studies) and text messaging added to other smoking cessation interventions was more effective than other individual smoking cessation interventions (RR 1.59, 95% CI 1.09 to 2.33; I^2=0%, four studies).[17] Another meta-analysis of 13 trials reported smoking quit rates with text messaging intervention were 35% higher than quit rates for controls (OR=1.35, 95% CI 1.23 to 1.49).[18] Other reviews of studies from HICs suggest that such interventions can increase the chance of quitting smoking tobacco from 39% to 80%.[19 20] Studies on SLT cessation that included randomised controlled trials conducted in HICs as well as some LMICs showed that behavioural cessation interventions led to quit rates between 9% and 51.5% at 6 months.[11 21] There are, however, little data on the efficacy and effectiveness of such intervention combined with mobile phone-based counselling in LMIC like India. Improved participation in tobacco cessation programmes through the use of mobile phone technology can have a substantial impact on a population at risk even with a small effect size.[22]

There is an urgent need to test the effectiveness of the use of mobile phone messages for SLT cessation in the Indian primary care setting.[23] We hypothesise that a face-to-face intervention offered by a tobacco counsellor together with low-cost mobile-based counselling has the potential to deliver a high-quality cessation intervention to SLT users. Prior to that, we need to test the feasibility and acceptability of recruitment, delivery of the intervention and the follow-up of participants within a randomised controlled trial.

AIM AND OBJECTIVES

Our overarching future aim is to evaluate within a randomised controlled trial, the clinical effectiveness (as measured by tobacco cessation) and cost-effectiveness of a complex intervention of face-to-face counselling coupled with mobile phone messaging delivered to SLT users visiting Indian primary care clinics in addition to routine care provided by the primary care professional against routine care alone. Prior to undertaking a full trial, we aim to develop and finalise the intervention and then test its acceptability and feasibility. Specific objectives of this study are to assess within an exploratory randomised controlled trial, the proportion of:

1. ll primary care SLT user attendees approached to take part in the trial that consent to randomisation.
2. Those who are randomised to the intervention comply with the intervention.
3. Those who are randomised on whom the follow-up data can be collected.
4. Missing data on all research measures administered at baseline and 3 months, which will be used to assess the primary and secondary outcomes for conducting effectiveness randomised controlled trial in the future.

METHODOLOGY

Patient and public involvement

The patients and public were involved in the formulation of the study hypothesis from previous research studies.[24 25] The research questions, design and outcome measures were derived from previous interaction with different stakeholders including patient and public. Tobacco users and other stakeholders (including primary care physicians, counsellors) will be involved in the development of two components of the intervention, that is, face-to-face counselling and mobile phone messages. These will be done by in-depth interviews and focus group discussion in the formative phase of the study (online supplemental appendix A). The summary of the results of the study will be made available to patients and public at the end of the project period.

Table 1 SPIRIT figure illustrating the phases of CERTAIN trial and data collection time points

	Study period					
	Pre-enrolment	Enrolment	Allocation	Post allocation		Close-out
Time point	0	0	0	0	3 months	After 3 months
Enrolment						
Eligibility screening		X				
Informed consent		X				
Randomisation to treatment allocation			X			
Interventions						
Routine care	X					
Ten-minute face-to-face counselling				X		
Mobile message-based counselling					X	
Assessments						
Demographic		X				
Baseline assessment		X				
Mid-line assessment—qualitative assessment at 1.5 months of recruitment					X	
End-point assessment						X
Saliva cotinine assessment						X
Qualitative assessment with drop outs						X
Qualitative assessment with participants who successfully completed the follow-up						X

CERTAIN, Counselling intErvention foR smokeless Tobacco cessAtion in INdian primary care; SPIRIT, Standard Protocol Items: Recommendations for Interventional Trials.

Study design

The study will be conducted in two different phases. The first phase is a formative phase (online supplemental appendix A) and the second phase is an exploratory, parallel-group, randomised controlled trial, with pretest and post-test assessments. The duration of the study will be 18 months. The first phase will last for 8 months, whereas the second phase will occur over 10 months (see table 1). The study flowchart is provided in figure 1.

Study setting

The study will be conducted in urban primary health centres (UPHCs). All UPHCs in Berhampur city of Ganjam district of Odisha will be selected for this study.

Study population

The study participants will include adult SLT users who visit UPHCs in Berhampur city, Odisha. Participants will be current SLT users (i.e, users in the last 3 months), aged 18 years and above, have a mobile phone with a valid contact number and willing to consent to participate in the study.

Participants below the age of 18 years, who do not have the mental capacity to consent, with illness limiting their adherence and follow-up within the study, will be excluded.

Interventions

The intervention arm includes routine care (component 1) along with a single 10-min face-to-face intervention based on 5A's approach (component 2), followed by mobile phone counselling (component 3). The control arm will be the provision of routine care alone (ie, component 1).

Counselling intErvention for smokeless Tobacco cessAtion in INdian primary care (CERTAIN) intervention: the intervention will be a combination of the following components

1. Component 1 or delivery of 'routine care' as delivered by a primary care physician over 1 min to 2 min. This component will be delivered to both the intervention and control arms of the study. This is based on 'Ask' and 'Advice'. Under 'Ask', the physician will ask about consumption of SLT and under 'Advice', the physician will advise participants about the benefits of complete abstinence in a clear personalised manner.
2. Component 2 will include a single 10-min face-to-face intervention delivered by a practice-based counsellor. This component will include brief standardised advice provided to participants based on 5A's approach[26] to tobacco cessation. Under this approach, the counsellor will 'Ask' the participants whether they use SLT; 'Advice' them on the importance of quitting (following the same script of component 1). Additionally, they

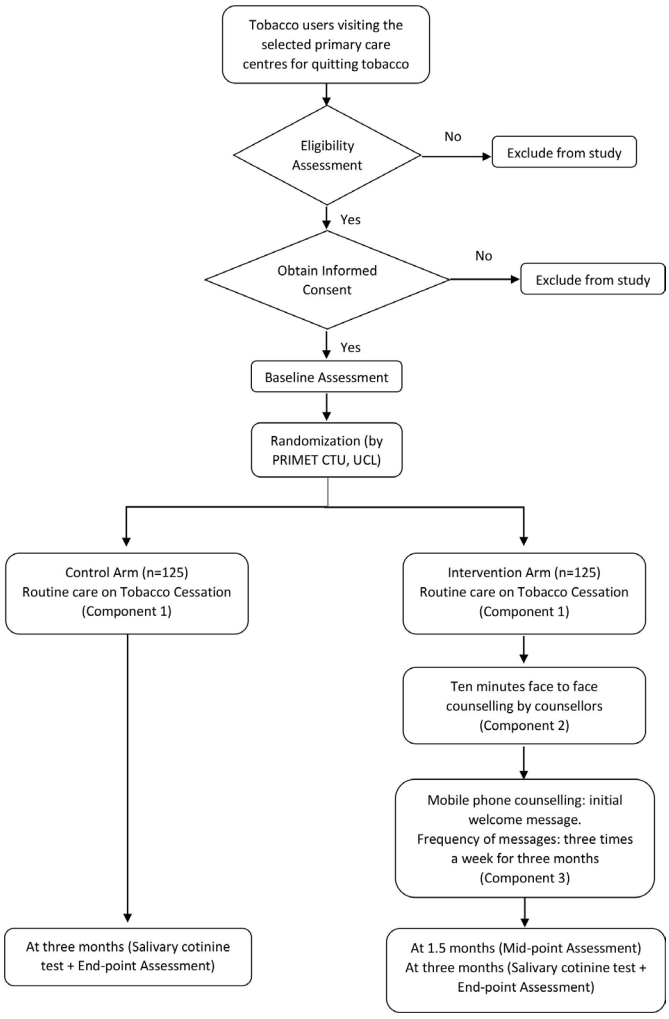

Figure 1 Trial schema showing the pathway for patients' recruitment process in Counselling intErvention foR smokeless Tobacco cessAtion in INdian primary care (CERTAIN) study.

will 'Assess' their willingness to 'quit now'; offer them 'Assistance' in the form of nicotine replacement therapy and/or provide them with a referral for behavioural support and 'Arrange' a follow-up to check on progress. This will conclude with their enrolment to receive component 3—mobile phone intervention.

3. Component 3 will also follow 5A's approach to tobacco cessation. The intervention will include an initial message after 48 hours of recruitment, to remind them to quit tobacco followed by messages occurring three times a week for the next 3 months. Each follow-up message will offer behavioural messages to support quitting; information about health risks of tobacco use and benefits of quitting and advice on withdrawal symptoms and coping strategies.

Training of tobacco cessation counsellors delivering the intervention

Counsellors at UPHCs are allied healthcare workers and will be trained by the members of the research team to deliver counselling intervention. They will not be involved in data collection or data analysis. Their training will be done using a standardised training manual (hardcopy of study manual will be provided to these counsellors) to maintain the fidelity of the intervention.

Outcomes

The main outcomes expected from this exploratory trial include:

1. The proportion of all the tobacco users approached who consent to randomisation.
2. The proportion of those randomised who comply with the intervention.
3. The proportion of those randomised on whom follow-up data are collected at 3 months.

We will also assess the feasibility of assessing outcomes of primary interest in the main trial as listed below:

- 'Self-reported tobacco abstinence' of 7 days confirmed by a salivary cotinine test.
- Self-reported motivation and intention to quit.
- Cost-effectiveness as cost per disability-adjusted life year (DALY) averted.
- Cost-effectiveness as cost per quality-adjusted life year (QALY) gained.

The outcomes will be assessed at baseline on recruitment to the study and the end of 3 months. At baseline, sociodemographic details such as age, gender, educational level, marital status, religion, community, and economic status will be recorded. Variables related to tobacco consumption will be recorded, including the number of SLT products per day (frequency) consumed, age of initiation, number of previous cessation attempts and longest period of cessation. The data on quit attempts, the status of tobacco use and challenges will be recorded during baseline and end point. The biochemical validation of self-reported tobacco abstinence for 7 days will be assessed using salivary cotinine at the end of 3 months. The rapid test kit works through visual interpretation of colour developed on the kit and is instant in processing.[27 28] Participants will be approached by the trial team members to provide a small sample of saliva, which will be collected through passive drooling. Collection, transportation and disposition of the biological samples and the kit will be managed at the study site by the site coordinator and research team. Cotinine is a preferred marker for tobacco use because cotinine stays in the body much longer than nicotine. The presence of cotinine in saliva or urine is a reliable indicator of tobacco use. Cotinine in vivo has a half-life of about 20 hours and lasts for about 3–4 days in the saliva and urine.[29 30]

Sample Size

Based on the primary outcomes in this exploratory trial of recruitment to the study and attrition, a total of 250 participants (125 participants per group) are required to estimate an anticipated proportion of 50% recruitment of participants with a 95% CI of 44% to 57% and 20% attrition at follow-up with a 95% CI of 15% to 25%. The sample size was calculated based on estimating proportions with a specified level of precision at the 95% level

as measured by the width of the CI using the Sample Size Tables for Clinical Studies software.[31]

Randomisation and allocation

Randomisation will be done at the level of individual eligible participants who have provided informed consent. Randomisation will be stratified by study practice site (UPHCs) using random permuted blocks of varying block sizes from 4 to 10 and a 1:1 allocation to intervention or control arm. A randomisation list will be prepared by an independent statistician (from PRIMENT Clinical Trials Unit, University College London) not involved with this study. This list will be mailed to an independent staff member at the study site in India who will be responsible for the allocation of participants to the respective intervention arm. The independent staff member will assign a unique identification number to each of the consented participants and will maintain a list of those allocated to the respective study arm. The updated list will then be sent to the randomisation coordinator who will be responsible for overseeing the recruitment and randomisation process. The randomisation coordinator will remove all the participant identifiers from the list and finally send the list to the statistician for the purpose of analysis.

The trial will ensure a clear separation between staff who collect outcome data and those who deliver the intervention. Staff collecting outcome data will be blinded to the group assignment. None of the intervention staff, primary care physicians and behavioural counsellors will collect outcome data. All investigators, staff and participants will be kept masked to outcome measurements and any preliminary results emerging from the trial.

Data management

Baseline and end-point data will be collected from participants at UPHC using surveys in paper format. This will be entered electronically in the database developed in MS Access (Microsoft Office 2019). The quality of the data will be monitored by a data supervisor for completeness, validity and integrity. In case of incomplete data or inconsistent responses, the data supervisor will verify these with the study participants and update the entries in the database. The database will incorporate a range of inconsistency checks to limit data entry errors. Time-stamped audit trail will also be built in the database to independently record the date and time of operator entries and actions that create, modify, or delete electronic records.

Data analysis

Statistical analysis

Participant characteristics will be summarised using mean and SD or median and IQR for continuous variables, and number and percentages for the categorical variables. The proportion of participants recruited and lost to follow-up at the end point will be estimated with 95% CIs. As part of the secondary analyses, logistic regression models will be used to estimate the intervention effects with 95% CIs for the prespecified outcomes, tobacco abstinence and self-reported motivation and intention to quit after adjusting for the stratification factor (UPHC) and baseline values of the outcome where it is available. These analyses will be done on an intention to treat (participants as randomised with available outcome data) basis, and multiple imputation will be used to handle missing outcome values if considered appropriate. The extent of missing data for each variable and the percentage of participants adhering to the intervention will be reported. Attrition levels by randomised group and the characteristics of participants who are lost to follow-up will also be reported. All analyses will be done using STATA software V.17 (StataCorp. 2019. *Stata Statistical Software: Release* V.17. College Station, Texas: StataCorp LLC) or updated versions. A detailed statistical analysis plan will be drawn up nearer to the analysis stage, prior to the database lock.

Economic evaluation

The aim will be to evaluate the feasibility of calculating the cost-effectiveness of routine care along with intervention compared with routine care alone from an Indian healthcare cost perspective over 3 months. This will include the level of data completeness of self-completed questionnaires of tobacco-related healthcare resource use, estimation of the intervention and routine care costs. The feasibility of calculating cost per DALY averted, particularly in relation to potential cases of cancer avoided, as part of the main trial will also be evaluated in addition to data requirements for a decision model to evaluate the lifetime cost-effectiveness of the intervention calculated as the cost per QALY gained.

Trial status

The two major COVID-19 pandemic waves have affected India (wave 1 in March 2020 and wave 2 in April 2021). This has delayed the recruitment of the trial since outpatient departments were not operational or operating with limited staff. Our current plan is to start recruitment by mid-July 2021. As per the original proposal, the follow-up was for a period of 6 months, our current plan for follow-up is now for 3 months.

DISCUSSION

To the best of our knowledge, this is the first study evaluating a complex low-cost intervention of two components, that is, face-to-face counselling along with mobile phone messaging counselling delivered to SLT users in low resource Indian settings. The first component of the intervention is based on 5A's approach, which is known to be effective.[32] However, such a brief intervention may have a limited effect if the person is not ready to quit on account of other factors associated with difficulty in quitting tobacco.[33] However, follow-up quitting advice to tobacco users can increase quit attempts and quit rates,[32] and this will be achieved through the mobile phone messaging. Mobile-based interventions are widely used

in the developed world, and research on smoking cessation suggests that they can increase tobacco quitting by 25%–50%.[20] A study conducted in Sweden assessed the heterogeneous treatment effects of text messaging intervention among smokers and found that the effect was less pronounced among the participants with stronger nicotine dependence.[34] Tailoring of such interventions for specific individuals needs to be considered, as each individual will need messaging according to their beliefs and their readiness to quit. The mobile messages in our study will be developed with this context in mind. To date, there have been no evaluations conducted to assess the effectiveness of such complex low-cost intervention in low resource settings and primary care. The development and delivery of comprehensive, tailored primary care behavioural and mobile phone health technology interventions will enhance the understanding of low-cost long-term prevention intervention for tobacco cessation. Recent evidence has emerged on the association of tobacco use with novel coronavirus disease.[35 36] The use of SLT often involves hand-to-mouth contact that can promote the spread of COVID-19. Another behaviour that can spread infections associated with the use of SLT is the spitting of or projection of excess saliva produced during the chewing process.[37] While the struggle with coronavirus infection control continues, we have an opportunity to expand cessation intervention specifically designed for SLT use and promote good infection control practice.

Strengths and limitations

This study has many strengths. The results of this study will inform the feasibility of conducting effectiveness trials in the future. Incorporating messaging technology in routine clinical practice will be time-efficient as the messages can be delivered anywhere, at fixed times, and directly to the participant with negligible direct contact while also ensuring privacy. The impact of this research on the training of health professionals will lead to an improved understanding of the delivery of low-cost tobacco cessation interventions in primary care. There are, however, some limitations to the study. As the study is being conducted in urban health centres in Berhampur city, Odisha, the findings would not be generalisable to other healthcare settings as well as to the whole population of the Odisha state. The primary care physicians may get unmasked to the allocation of the participants during the course of the trial as the participants visiting the UPHCs may reveal the information to the physicians. There is a chance of biased results if physicians may deliver repeated face-to-face counselling services. The inclusion criteria include SLT users having a mobile phone, this may exclude a section of the SLT users who do not have a personal mobile phone like people of low socioeconomic status or elderly who do not use a mobile phone. The follow-up is only for 3 months. Longer follow-up assessments might provide different findings.

Research impact

In this study, SLT cessation intervention will be developed using an innovative method including a formative research phase, where the SLT cessation intervention will be developed; and the exploratory randomised controlled trial phase, where the evaluation of this intervention will be conducted. The evidence from this exploratory study will inform the acceptability and feasibility of SLT cessation interventions in users of SLT and will inform the conduct of a larger multicentric trial across several centres and countries. Findings from this study will provide insights into designing similar studies and appropriate interventions in tobacco cessation and non-communicable diseases. Since research in this area is in its infancy in LMIC, this work will provide an impetus for researchers working on tobacco cessation to generate new evidence and allow them to adapt the tools developed and piloted in this study in real-time practice.

Ethics and dissemination

Ethics approval has been obtained from the Institutional Ethical Committee at Public Health Foundation of India (PHFI) (ref: TRC-IEC-391/19; dated May 29, 2019). At the national level, ethical clearance has also been obtained from the Health Ministry's Screening Committee (HMSC), led by the Indian Council of Medical Research (ICMR) (ref: 2019–3581; dated December 11, 2019). Also, local level approval was obtained from the Odisha State Ethics Board (ref: 191/PMU/187/17; dated November 14, 2019). In the UK, ethical clearance was obtained by the UCL Research Ethics Committee (ref: 5686/001, dated October 1, 2019). The study has been registered at Clinical Trials Registry India (reference number CTRI/2019/05/019484). All the participants (participating in both the phases in this study) will be provided with a participant information sheet (PIS), providing details of the study. Following this, voluntary written consent for participation will also be taken from them (online supplemental appendix). All the data that will be collected for the study will be stripped of any personal identifiers and the data will be stored in PHFI's data repository. The data will only be accessible to the principal investigator and trial team analysing the data. To ensure confidentiality, data shared to project team members will be blinded for any identifying participant information. The findings of the study will be published in peer-reviewed journals.

Contributors All authors contributed to the manuscript. RP (PI of the study—India) and IN (PI of the study—UK) designed the study, led on writing, review and finalising the paper. RO provided statistical guidance. RH provided inputs on designing the economic evaluation section of the study. AM provided inputs on designing the formative research section of the study. RRP reviewed and assisted in writing the early drafts of the paper. All authors provided critical feedback and helped in shaping the manuscript.

Funding This research work is funded by the Joint Global Health Trials Initiative MRC/DfID/Wellcome Trust (ref: MR/P021166/1). This research work is sponsored by University College London, Gower Street, London, WC1E 6BT, UK.

Competing interests None declared.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

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Appendix A: Details about the Formative Research phase of CERTAIN Study

Qualitative research methods will be used in the formative phase. In-Depth Interviews (IDIs) will be conducted with smokeless tobacco (SLT) users as well as primary care physicians present in UPHCs and Focus Group Discussions (FGDs) will be conducted with tobacco cessation counsellors. The formative research study will be based on a maximum variation sampling. A maximum variation sample will be constructed by identifying key dimensions of variations and then finding participants that vary from each other as much as possible. This sampling will yield detailed descriptions of each respondent, useful for documenting uniqueness, and this will allow researchers to identify common themes that are evident across the heterogeneous group of study participants. The variation will cover the socio-demographic characteristics of the study participants. The formative phase will assist in finalising two components of the intervention, contents for face to face counselling and a mobile phone intervention (regular messages). The formative research will be conducted in three sequential phases.

Phases in Formative Research:
In Phase 1, IDIs will be conducted with a purposive sample of male (n=15) and female (n=15) SLT users or dual users visiting UPHCs during the study period. IDIs will also be conducted with primary care physicians (n=5) present at these UPHCs. Participants' views on the detail of text messages will be explored. These views will inform the final text messages deemed suitable for tobacco cessation support. The messages will be tailored to users' health conditions and will use local terms, dialects and opinions of various stakeholders.

In Phase 2A, two FGDs will be conducted each with six primary care staff (ANM, ASHA, pharmacists, staff nurse, counsellors) who will be employed in the urban health clinic for more than a year and who show willingness to participate. Focus groups will explore the perspective of participants' regarding the preliminary content and structure of messages, use of tailored messages addressing the risk of tobacco for specific diseases, associated comorbidities, risks of tobacco usage in these comorbid conditions, readiness to quit stage and withdrawal symptoms.

In Phase 2B, developed text messages will undergo validation. The validation study will be conducted with SLT users visiting UPHCs. Each will be given a validation tool (developed specifically for this study) which will be used to score each of the newly developed messages. The messages that get the highest score will be adopted as a part of the intervention. IDIs will also be conducted with these tobacco users to gain their views and opinions regarding developed text messages.

Phase 3, will be conducted at two-time points (i.e., mid-line and end-line) in the trial follow-up period. At mid-line (1.5 months), IDIs will be conducted with SLT users to assess the appropriate engagement of the text messages. At end of three-months, IDIs will be conducted with SLT users who complete the follow-up period as well as with the SLT users who drop out of the study. Perceptions about appropriate engagement and satisfaction with text messages will be captured at this point.

The IDIs and FGDs will be conducted by trained qualitative research team members. Each team will have a moderator and note-taker. All interviews will be audio-recorded (with participants' consent) and transcribed. The transcriptions will be analysed using a qualitative framework analysis method. All transcripts will be reviewed and coded by two members of the research team to minimize subjective interpretations. We will use Atlas.ti (Version 8) software to evaluate the data.

Training of qualitative research team: All members of the qualitative research team participating in the study at each UPHCs will be trained. The training of qualitative researchers will include how to introduce the study to potential participants, obtaining verbal and written consent, conducting IDIs and FGDs, confidentiality and data transcription/translation/storing/handling.

SPIRIT 2013 Checklist: Recommended items to address in a clinical trial protocol and related documents*

Section/item	Item No	Description	Yes/No	Page No
Administrative information				
Title	1	Descriptive title identifying the study design, population, interventions, and, if applicable, trial acronym	Yes	1
Trial registration	2a	Trial identifier and registry name. If not yet registered, name of intended registry	Yes	2
	2b	All items from the World Health Organization Trial Registration Data Set	Yes	2
Protocol version	3	Date and version identifier	Yes	1-12
Funding	4	Sources and types of financial, material, and other support	Yes	9
Roles and responsibilities	5a	Names, affiliations, and roles of protocol contributors	Yes	1
	5b	Name and contact information for the trial sponsor	Yes	9
	5c	Role of study sponsor and funders, if any, in study design; collection, management, analysis, and interpretation of data; writing of the report; and the decision to submit the report for publication, including whether they will have ultimate authority over any of these activities	N/A	N/A
	5d	Composition, roles, and responsibilities of the coordinating centre, steering committee, endpoint adjudication committee, data management team, and other individuals or groups overseeing the trial, if applicable (see Item 21a for data monitoring committee)	N/A	N/A

Introduction				
Background and rationale	6a	Description of research question and justification for undertaking the trial, including summary of relevant studies (published and unpublished) examining benefits and harms for each intervention	Yes	3-4
	6b	Explanation for choice of comparators	Yes	4
Objectives	7	Specific objectives or hypotheses	Yes	4
Trial design	8	Description of trial design including type of trial (eg, parallel group, crossover, factorial, single group), allocation ratio, and framework (eg, superiority, equivalence, noninferiority, exploratory)	Yes	4
Methods: Participants, interventions, and outcomes				
Study setting	9	Description of study settings (eg, community clinic, academic hospital) and list of countries where data will be collected. Reference to where list of study sites can be obtained	Yes	4
Eligibility criteria	10	Inclusion and exclusion criteria for participants. If applicable, eligibility criteria for study centres and individuals who will perform the interventions (eg, surgeons, psychotherapists)	Yes	4-5
Interventions	11a	Interventions for each group with sufficient detail to allow replication, including how and when they will be administered	Yes	5
	11b	Criteria for discontinuing or modifying allocated interventions for a given trial participant (eg, drug dose change in response to harms, participant request, or improving/worsening disease)	N/A	N/A
	11c	Strategies to improve adherence to intervention protocols, and any procedures for monitoring adherence (eg, drug tablet return, laboratory tests)	N/A	N/A

	11d	Relevant concomitant care and interventions that are permitted or prohibited during the trial	N/A	N/A
Outcomes	12	Primary, secondary, and other outcomes, including the specific measurement variable (eg, systolic blood pressure), analysis metric (eg, change from baseline, final value, time to event), method of aggregation (eg, median, proportion), and time point for each outcome. Explanation of the clinical relevance of chosen efficacy and harm outcomes is strongly recommended	Yes	5-6
Participant timeline	13	Time schedule of enrolment, interventions (including any run-ins and washouts), assessments, and visits for participants. A schematic diagram is highly recommended (see Figure)	Yes	Figure 1 (Image)
Sample size	14	Estimated number of participants needed to achieve study objectives and how it was determined, including clinical and statistical assumptions supporting any sample size calculations	Yes	6
Recruitment	15	Strategies for achieving adequate participant enrolment to reach target sample size	Yes	6
Methods: Assignment of interventions (for controlled trials)				
Allocation:				
Sequence generation	16a	Method of generating the allocation sequence (eg, computer-generated random numbers), and list of any factors for stratification. To reduce predictability of a random sequence, details of any planned restriction (eg, blocking) should be provided in a separate document that is unavailable to those who enrol participants or assign interventions	Yes	6
Allocation concealment mechanism	16b	Mechanism of implementing the allocation sequence (eg, central telephone; sequentially numbered, opaque, sealed envelopes), describing any steps to conceal the sequence until interventions are assigned	Yes	6

Implementation	16c	Who will generate the allocation sequence, who will enrol participants, and who will assign participants to interventions	Yes	6
Blinding (masking)	17a	Who will be blinded after assignment to interventions (eg, trial participants, care providers, outcome assessors, data analysts), and how	Yes	6
	17b	If blinded, circumstances under which unblinding is permissible, and procedure for revealing a participant's allocated intervention during the trial	N/A	N/A
Methods: Data collection, management, and analysis				
Data collection methods	18a	Plans for assessment and collection of outcome, baseline, and other trial data, including any related processes to promote data quality (eg, duplicate measurements, training of assessors) and a description of study instruments (eg, questionnaires, laboratory tests) along with their reliability and validity, if known. Reference to where data collection forms can be found, if not in the protocol	Yes	6
	18b	Plans to promote participant retention and complete follow-up, including list of any outcome data to be collected for participants who discontinue or deviate from intervention protocols	Yes	6
Data management	19	Plans for data entry, coding, security, and storage, including any related processes to promote data quality (eg, double data entry; range checks for data values). Reference to where details of data management procedures can be found, if not in the protocol	Yes	7
Statistical methods	20a	Statistical methods for analysing primary and secondary outcomes. Reference to where other details of the statistical analysis plan can be found, if not in the protocol	Yes	7
	20b	Methods for any additional analyses (eg, subgroup and adjusted analyses)	Yes	7
	20c	Definition of analysis population relating to protocol non-adherence (eg, as randomised analysis), and any statistical methods to handle missing data (eg, multiple imputation)	Yes	7

Methods: Monitoring				
Data monitoring	21a	Composition of data monitoring committee (DMC); summary of its role and reporting structure; statement of whether it is independent from the sponsor and competing interests; and reference to where further details about its charter can be found, if not in the protocol. Alternatively, an explanation of why a DMC is not needed	N/A	N/A
	21b	Description of any interim analyses and stopping guidelines, including who will have access to these interim results and make the final decision to terminate the trial	N/A	N/A
Harms	22	Plans for collecting, assessing, reporting, and managing solicited and spontaneously reported adverse events and other unintended effects of trial interventions or trial conduct	Yes	9
Auditing	23	Frequency and procedures for auditing trial conduct, if any, and whether the process will be independent from investigators and the sponsor	N/A	N/A
Ethics and dissemination				
Research ethics approval	24	Plans for seeking research ethics committee/institutional review board (REC/IRB) approval	Yes	9
Protocol amendments	25	Plans for communicating important protocol modifications (eg, changes to eligibility criteria, outcomes, analyses) to relevant parties (eg, investigators, REC/IRBs, trial participants, trial registries, journals, regulators)	N/A	N/A
Consent or assent	26a	Who will obtain informed consent or assent from potential trial participants or authorised surrogates, and how (see Item 32)	Yes	9
	26b	Additional consent provisions for collection and use of participant data and biological specimens in ancillary studies, if applicable	N/A	N/A
Confidentiality	27	How personal information about potential and enrolled participants will be collected, shared, and maintained in order to protect confidentiality before, during, and after the trial	Yes	9

Declaration of interests	28	Financial and other competing interests for principal investigators for the overall trial and each study site	Yes	9
Access to data	29	Statement of who will have access to the final trial dataset, and disclosure of contractual agreements that limit such access for investigators	Yes	9
Ancillary and post-trial care	30	Provisions, if any, for ancillary and post-trial care, and for compensation to those who suffer harm from trial participation	N/A	N/A
Dissemination policy	31a	Plans for investigators and sponsor to communicate trial results to participants, healthcare professionals, the public, and other relevant groups (eg, via publication, reporting in results databases, or other data sharing arrangements), including any publication restrictions	Yes	4
	31b	Authorship eligibility guidelines and any intended use of professional writers	Yes	8
	31c	Plans, if any, for granting public access to the full protocol, participant-level dataset, and statistical code	N/A	N/A
Appendices				
Informed consent materials	32	Model consent form and other related documentation given to participants and authorised surrogates	Yes	Appendix B
Biological specimens	33	Plans for collection, laboratory evaluation, and storage of biological specimens for genetic or molecular analysis in the current trial and for future use in ancillary studies, if applicable	N/A	N/A

*It is strongly recommended that this checklist be read in conjunction with the SPIRIT 2013 Explanation & Elaboration for important clarification on the items. Amendments to the protocol should be tracked and dated. The SPIRIT checklist is copyrighted by the SPIRIT Group under the Creative Commons "Attribution-NonCommercial-NoDerivs 3.0 Unported" license.

Appendix B: PARTICIPANT INFORMATION SHEET (PATIENT RECRUITMENT: TRIAL)

Project title: Exploratory randomized trial of face to face and mobile phone counselling against usual care for tobacco cessation in Indian primary care

Principal Investigator and ethics secretary contact number and organization:

Dr Rajmohan Panda, MD, MPH Public Health Foundation of India (PHFI) Additional Professor 0124-4781400 raj.panda@phfi.org	Dr Aastha Agarwal Member Secretary Research Scientist and Assistant Professor Public Health Foundation of India Email: trc- iec@phfi.org Phone: 0124 478 1400

I am _____ conducting the research on behalf of Dr. Rajmohan Panda, Additional Professor, PHFI. I am conducting a research to test the effectiveness of face to face and mobile phone counselling against usual care for tobacco cessation in Indian primary care settings. This information sheet describes the research and invites you to be a part of it. You can take time to think about your participation in the research. Before you decide, you can talk to anyone about the research. If this information sheet contains words that you do not understand, please feel free to ask me. If you have any other questions too, you can ask me.

Project brief

Tobacco is an important public health issue contributing towards many significant health problem and needs to be prevented. Tobacco cessation counselling has been identified as an important strategy to help people give up using tobacco. The overburdened health professionals and busy hospital out-patient-department provides limited time to the doctors/counsellors to counsel tobacco users. Through this research we aim to develop and test an innovative mobile telephone counselling system to assist tobacco users give up using tobacco.

What is the treatment offered in this trial?

This research may use mobile phone based counselling system using text messages.

Why have you been asked to take part in this research?

You are being invited to take part in this research because you use tobacco. We request you to consider participating as we feel that you will be able to provide us with information that will help in understanding and improving the mobile counselling services which we will then be tested in a trial. If you agree, I would like to ask you about these matters and request you to answer the questions to the best of your knowledge.

Is my participation in this research entirely voluntary?

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. You do not have to take part in this research if you do not wish to do so, and choosing to participate will not affect your treatment or treatment-related evaluations in any way.

If you do take part, the interview will take about 25 minutes to 40 minutes and I want to assure you that the information that you provide will be kept confidential. Your name or other information that could identify you will not appear in research record or report. You are free to withdraw from this research at any time should you change your mind.

Do you have any questions?

What are the risks of my participation in this research?

We are asking you to share with us some information related to your health and habits, and you may feel uncomfortable talking about some of the topics. You do not have to answer any question you do not want to answer. Nor do you need take part in the intervention or interview if you don't wish to do so, and that is all fine. You do not have to give us any reason for not responding to any question or for refusing to take part in the interview. The information that you give is confidential and will not be shared by any one in any manner that can identify you.

What are the benefits of my participation in this research?

By participating in the research you are contributing in the development of a counselling mechanism which will help people (including yourself) quit tobacco use in the future. This will have direct benefit to your health and that of other people using tobacco.

Will the information I provide be kept private and confidential?

We will ensure your privacy is maintained during the interviews. This will be ensured by conducting one interview at a time in a room in the health facility. We will not share the information you provide with anyone other than the research team. The information so collected from this research will be kept private in a secure manner and none of your personal details will appears on this information. Rather it will be allocated a number which only the researchers will be able to associate the number with you. The information provided by you hence will not be attributed to you by name. The knowledge that we get from this research will be shared with you and your community before it is made widely available to the public.

Do I have the right to refuse or withdraw from the research?

You do not have to take part in this research if you do not wish to do so, and choosing to participate will not affect your treatment or treatment-related evaluations in any way. You may stop participating in the interview at any time that you wish without your treatment being affected.

Respondent agrees for Interview……1 → BEGIN THE INTERVIEW AFTER

Respondent does not agree for interview……2 → END

CONSENT FORM (PATIENT RECRUITMENT: TRIAL)

Project title: Exploratory randomized trial of face to face and mobile phone counselling against usual care for tobacco cessation in Indian primary care.

Name of Researcher/ Secretary Ethics committee:

Dr Rajmohan Panda, MD, MPH Public Health Foundation of India (PHFI) Additional Professor 0124-4781400 raj.panda@phfi.org	Dr Aastha Agarwal Member Secretary Research Scientist and Assistant Professor Public Health Foundation of India Email: trc- iec@phfi.org Phone: 0124 478 1400

Please tick the box

1. I confirm that I have read the information sheet for the above research. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected. ☐
3. I understand that the information collected about me will be used to support other research in the future, and may be shared anonymously with other researchers. ☐
4. I agree to my primary care practitioner (PCP) being informed of my participation in the research. / I agree to my primary care practitioner being involved in the research, including any necessary exchange of information about me between my PCP and the research team. ☐
5. I agree to take part in the above research. ☐

_____ _____

Name and Signature (Participant) Date

_____ _____

Name and Signature (Consent Taker) Date