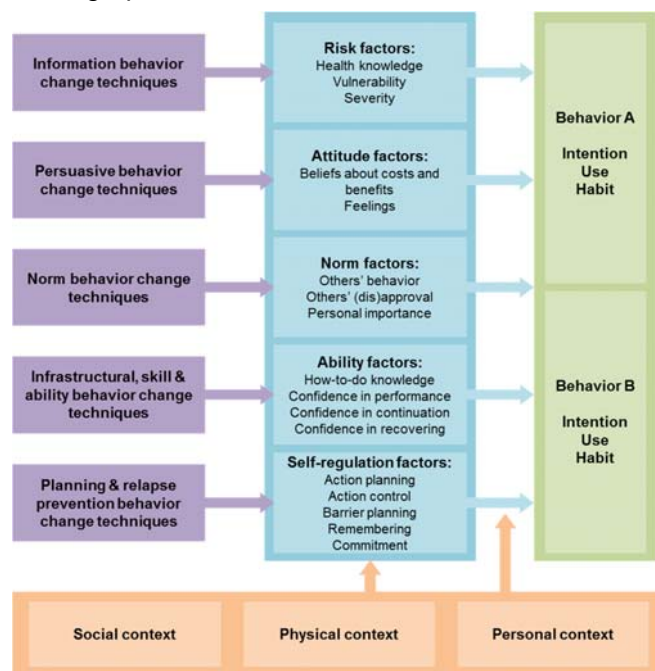


TW14 Pre-analysis plan: TW 14.10.10 Promoting latrine use in rural India using the risks, attitudes, norms, abilities and self-regulation approach to behaviour change

1. Intervention

1.1. Theoretical framework

The purpose of this project is to develop and test acceptable, feasible and low-cost interventions to promote latrine use in rural India. The interventions to be tested were selected using the risks, attitudes, norms, abilities and self-regulation (RANAS) approach to systematic behaviour change¹. The core of the RANAS approach is to systematically identify the most relevant drivers and barriers of the target behaviour (behavioural factors) and, based on evidence from health and environmental psychology, match specific behaviour change techniques (BCTs) to each of the behavioural factors identified. The RANAS model is presented in the graph below.



¹ Mosler, H.-J. (2012). "A systematic approach to behavior change interventions for the water and sanitation sector in developing countries: a conceptual model, a review, and a guideline." *International Journal of Environmental Health Research* **22**(5): 431-449.

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1.2. Intervention summary

In this project, behavioural factors steering latrine use were identified during a formative pre-study (Phase 1 of the project). To change the identified behavioural factors, specific behaviour change techniques (BCTs) were selected from the BCT catalogue of the RANAS approach. Suitable communication channels for these BCTs were identified based on the preferences of the community from the field-data collected. This led to the following four intervention strategies to be tested in this impact assessment. The numbering of BCTs refers to the RANAS catalogue of BCTs:

1. Interactive community meeting to assess the benefits of latrine use and costs of open defecation with participants (BCT 5) and to create a personal norm for latrine use in linking latrine use to pride and leadership (BCT 13).
2. Household visit including a public commitment through a family photo (BCT 10), instruction poster for correct latrine use and cleaning (BCT 15), morning routine planning (BCT 26), and reminder stickers on tumblers used for anal cleansing (BCT 34).
3. Follow-up communication through mobile phones including a pictorial SMS reminder to be sent early in the morning (BCT 34).
4. Parents meeting in Anganwadi Centres promoting safe handling of child faeces by creating awareness for risks and disgust associated with unsafe disposal of child faeces (BCTs 1, 3, 8), linking safe disposal to happy children and mothers (BCT 8), giving instructions and practicing on how to assist children in using the latrine (BCTs 15, 18) and prompting mothers to agree on a behavioural contract (BCT 36).

The baseline survey will be used to corroborate the findings from Phase 1, which underlie the proposed intervention strategies. In case the baseline indicates relevant behavioural factors beyond the ones underlying the above-described intervention strategies, changes to the above strategies will be made. This allows tailoring the interventions as much as possible to the mindset of the target population. Consequently, the above-described activities are preliminary.

2. Evaluation Questions and Hypotheses

2.1. What are the main evaluation question(s) the study seeks to answer?

“What works and why?” best summarizes the research questions of this impact assessment.

WHAT WORKS: The principal aim of this impact assessment is to quantify to which extent the intervention increased latrine use of beneficiaries.

WHY: The second aim of this impact assessment is to quantify the mechanisms of action of the tested interventions. The risks, attitudes, norms, abilities and self-regulation (RANAS) model postulates that interventions have to change the behavioural factor which steer the behaviour and that changes in behavioural factors lead to behaviour change. Using mediation models, we will be able to determine which of the factors were mainly changed by the intervention, and how those changes resulted on behaviour change.

2.2. What are the hypotheses to be tested throughout the causal chain?

Hypothesis 1: In intervention households, increases in latrine use are statistically significantly higher than in control households.

Hypothesis 2: Changes in behavioural factors postulated in the RANAS model mediate changes in latrine use.

Hypothesis 3: In intervention households, improvement in safe disposal of child faeces is statistically significantly higher than in control households.

3. Sampling

3.1. Sampling frame

The eligible population for the study is households that have functional latrines (defined by having a pit, pan, and pipe connecting the two).

3.1.1. Inclusion criteria

Inclusion criteria for villages are as follows:

- Latrine coverage is greater than 30%. This will guarantee that latrine access is not limited to early adopters but that a representative number of households have latrines.
- Latrine coverage is less than 80%. The formative study yielded strong social pressure for latrine use in villages with high latrine coverage. Pressure was particularly high in villages awaiting certification as ODF. In such villages, establishing a trustful relationship between promoters and participants was very difficult, as participating households were scared of negative consequences such as fines and public blaming in case they admitted to practice OD. Thus, campaign implementation and valid measurement of latrine use does not seem to be possible in villages with more than 80% latrine coverage.
- Village has one Anganwadi Centre. Strategy 4 of the proposed intervention will be implemented through a parents meeting at Anganwadi Centres.
- Groundwater level is deeper than 30 ft. below ground. This makes groundwater contamination through leach pits very unlikely.
- In case a selected village is closer than 5 km from an already enrolled village, it will be replaced by another randomly selected village to avoid spill over between control and intervention villages. Only one village per GP will be selected.

3.1.2. What are the main characteristics of your population?

Household latrine coverage in the Raichur district of Karnataka is 29.98%, and water coverage is 64% (DDWS, 2014) with >90% being leach pits. However, implementation of SBM is a top priority for the state and district administration. There is a huge momentum in Raichur due to the active role being played by the CEO Zila Panchayat. The latrine coverage in the district has increased from a mere 9% to 26% in the last three years and currently stands at nearly 30%. The population in Raichur is predominantly rural with a high proportion of scheduled caste and tribe population of 40%. Majority of the rural dwellers are illiterate and most of them into unskilled labour with agriculture being the chief occupation. Ground water is the main source of drinking water for most of the villages with scarcity, biological contamination and fluoride contamination of many water sources being prevalent in the district. Although the district boasts of 1347 schools, 2189 Anganwadi Centres (AWCs) and 55 Health-care centres, the WASH infrastructure in the institutional setup is far from satisfactory and suffers from inadequacy, poor maintenance, poor access, contamination of drinking water and poor hygiene practices.

3.1.3. What is the expected sample size?

The sample size calculation is based on the primary outcome: Change over time in the relative number of adult household members who use the latrine for defecation. It is based on the assumptions outlined below and under Section 3.5.

- Expected baseline levels for primary outcome: 50%; Justification: The formative study yielded 50% latrine use across all adult household members.
- Expected take-up rates: 95%; Justification: During the pilot, nearly all households agreed to participate in the intervention. The interventions will be implemented under intensive monitoring and relatively controlled conditions. Resources for revisiting households that had not been reached during the first household visit are available.
- Expected attrition: We expect a maximum dropout of 25% in the initial baseline sample. Although a smaller dropout is likely, 25% are assumed as worst-case scenario, as there is no way to rectify larger attrition that assume once the trial has started.
- The sample size was calculated for one-tailed test, since the hypothesis is that the intervention will increase latrine use. Until present, no intervention designed using the RANAS approach has led to negative changes in the target behaviour.

This yielded a sample size of 2400 households across 120 villages.

3.1.4. Is there any reason to believe that the sample differs from the population? If so, how does it differ?

The sample of this study is randomly selected. All eligible villages from the entire district are considered and within villages all households having a functional latrine are considered. The sample is thus not expected to differ from population of Raichur district. If rural households in Karnataka are considered the population of this study, then it is unlikely that one district would be representative of the entire state given the heterogeneity of rural India. Raichur district is one of the least developed districts in Karnataka, and differs from other districts in terms of socio-demographic and socio-economic factors. Our choice reflects our decision to implement a theory based behaviour change intervention in a particularly difficult setting (in this case a socio-economically less developed district) to demonstrate what works and how in constrained settings. We believe that this will have important lessons for other regions in Karnataka and other parts of the country that have poor development indicators. So while generalizability may continue to be an issue, insights regarding the process of developing, implementing, and rigorously assessing a behaviour change intervention will be of great value.

3.1.5. Please describe the anticipated subgroups, which will be studied, if relevant.

No subgroup analyses are planned.

3.2. Statistical power

3.2.1. What is the effect size that you will be able to detect?

Minimal detectable effect size: 10% Justification: Values no greater than 10% have been suggested by Research Institute of Compassionate Economics (RICE).

3.2.1.1. What are your assumptions about your alpha level?

Level of alpha: 0.05; Justification: This is the standard value. Increasing the value would make sense if missing an intervention effect would have adverse consequences (e.g. not detecting a potentially harmful side effect). However, the aim of the impact assessment is to demonstrate that the proposed intervention works. Increasing alpha is thus not appropriate.

3.2.1.2. What are your assumptions about your statistical power?

Level of beta: 0.8; Justification: Statistical power greater than .8 is generally recommended in social science experiments.

3.2.1.3. What are your assumptions about variability in your effect size?

Intra-cluster correlation coefficient: .25; Justification: Computed by RICE from squat survey Data.

Standard deviation: 0.4; Justification: Computed by RICE from squat survey Data.

3.2.1.4. How many clusters will you have?

Number of clusters: 120

3.2.1.5. How many people will you have in each cluster?

Number of households per cluster: 20

3.2.1.6. How sensitive is your effect size to changes in your parameters?

The effect size is sensitive to changes in the parameters. We used conservative estimates for each parameters. We expect the actual minimum detectable effect size to be smaller than 10%. This will be verified using the census results.

3.2.2. If you plan to include covariates in your analysis, what share of variance do you expect to predict with your co-variates?

Inclusion of co-variates not planned.

3.3. Assignment to treatment

3.3.1. How will individuals be assigned to treatment and control conditions?

In order to minimize spill over to the control group, randomization is done on Gram Panchayat (GP) level. The sample size has been adjusted for the clustering of the sample. In case of several villages within one GP, one village within the GP is randomly selected. Although the number of clusters is relatively high, simple randomisation may result in an unbalanced allocation regarding latrine coverage and use. We thus propose randomized matching to achieve a balanced allocation to intervention and control: In a first step, matched pairs will be generated based on baseline characteristics. In a second step, one village per pair will be randomly assigned to the intervention condition and the other village to control. Random allocation will be done using a random number generator in Microsoft Excel. Sixty villages each will be assigned to intervention and control condition

3.3.2. How will you check that individuals in the treatment condition received treatment as anticipated?

We plan to closely monitor the implementation of the intervention using mWater, a mobile based system. We are working with the WaterAid program monitoring team to develop a simple comprehensive tool that will enable the implementing team (comprised of 12 field communicators and 2 supervisors) to track each household in the study, and record each activity implemented in the intervention villages. Given the use of a mobile platform, this will enable real time entry of data and facilitate real time monitoring by the two supervisors, SVYM coordinator, and the Project Coordinator from WaterAid India (Tejaswi Balasundaram). Data Collection

4. Primary data collection instruments

4.1.1. What data collection instruments will you employ for quantitative and qualitative analysis?

Four steps of data collection will be performed during this project. First, a census survey covering all households in all study villages will be performed. Data will be collected through standardized face-to-face interviews and spot-check observations. The census survey will measure socio-demographic characteristics and observe key characteristics of the latrine. Results will inform the selection of study households.

Second, a quantitative baseline survey will be performed measuring all outcome variables (see below) and behavioural factors of latrine use. Again, data will be collected through standardized face-to-face interviews and spot-check observations. Data on latrine use of all household members will be collected through the standardized tools of this thematic window. In addition, we will measure latrine use in more detail from one focal person in each household. The person will be randomly selected out of all adult household members. The same person will be interviewed regarding the behavioural factors of latrine use. These will be measured through dichotomous items and 5-point Likert scales. In order to measure the behavioural factors reliably, several questions per factor are necessary. Thus questions have to overlap.

Third, qualitative data on the perception of the interventions and effects on behavioural factors will be collected during and after the interventions in selected villages. Focus group discussions (FGD) using participatory action and learning tools will be used to collect qualitative information from four villages (2 intervention and 2 control) during the implementation phase. The qualitative study will delve deeper into some of the issues emerging from the baseline study and intervention, and will be in line with the components of the RANAS model. We aim to have FGDs with adult men and women in the communities (from households that have a functional latrine). We will also conduct in-depth interviews with influencers from the community (e.g., Panchayat leaders, ASHA workers) to understand latrine coverage and latrine use, and reflections on the intervention received in terms of what worked/appealed to the community (in intervention villages).

Fourth, a quantitative endline survey will be performed. The endline questionnaire will contain exactly the same items as the baseline questionnaire. In addition, general items on activities regarding to sanitation in the villages and specific items on participation in and the perception of this study's interventions will be added.

Census will be performed in all 124 villages. Baseline and endline will be performed in the 120 villages, which are part of the trial. Qualitative data will be collected in four additional villages. In order to control for seasonal influences the endline survey will be implemented exactly 12 months after the baseline. Data will be collected by data collectors who do not have any connection with the intervention. As the standardized measure of latrine use relies on self-reports, masking is not possible.

4.1.2. What is the hypothesised list of interviewees (i.e. key actors who will be interviewed, anticipated interview formats and expected number of respondents)? You may wish to present this information in a table.

For baseline and endline, randomly selected households members of each study household will be interviewed. The same household member will be interviewed at both time points. In case this is not possible despite several revisits at endline, but another household member is present, the standardized latrine use questions will be administered to this household member. In this case, however, the psychological questions will not be administered.

For the qualitative data collection, we aim to conduct three FGDs in the two intervention villages (two FGDs with men, one with women) and two FGDs in the control villages (one with men and

one with women), and a maximum of four in-depth interviews with key influencers in each village. Each FGD will have no less than six and no more than 12 participants.

4.1.3. What (groups of) indicators will each instrument cover?

Census

- Household identification and socio-demographic characteristics
- Presence of functional household latrine
- Latrine use

Baseline and endline

(Numbers in brackets refer to corresponding item numbers in the questionnaire.)

- Latrine use (standard items) (B5)
- Latrine characteristics (B4, B29, B30)
- Latrine use of main respondent (B6)
- Habit (B7&8) and Intention (B9) of main respondent
- Behavioural factors of latrine use of main respondent:
 - o Risk factors: health knowledge (B10), vulnerability (B11), severity (B12)
 - o Attitude factors: Feelings and beliefs about costs and benefits – Open defecation (B13) and Latrine Use (B14)
 - o Norm factors: Others' behaviour (B15), Personal Importance (B16), Others' Approval or disapproval (B17)
 - o Ability factors: How-to-do knowledge (B18), Confidence in performance, confidence in continuation and confidence in recovering (B19)
 - o Self-regulation factors / Action planning (B20), action control (B21), coping planning (B22), remembering (B23), commitment (B24)
- Availability of water (B25)

Respondent feedback (B26ff)

Qualitative data

The qualitative component will also seek to understand the community's perceptions of the four intervention activities in terms of:

- Exposure to the four intervention activities
- Appeal and relevance of the intervention activities
- Suggestions for how the intervention activities can be strengthened

4.1.4. How will each instrument be developed?

The census questionnaire will be based on 3IE/RICE requirements

The baseline survey will be developed based on the RANAS approach and will contain several items to measure each of the RANAS factors. In addition, it will contain the full set of standardized items for measuring latrine use comparably across projects.

For the qualitative study, we will develop a FGD and in-depth interview guide for each respondent category, drawing from the RANAS approach, baseline results, intervention implementation (in intervention villages), and interactions with district administration and community. For the FGD, participatory learning and action tools will be used to facilitate reflection and sharing by group members.

4.1.5. Please comment on the validity and reliability of each instrument, including any anticipated validation checks.

All quantitative tools will undergo several pre-tests:

- Qualitative pre-test of the theory derived questionnaire to obtain valid items measuring the intended constructs and tailor questions and response categories to the respondents.
- Quantitative pre-test using paper pencil format to streamline interview flow and obtain psychometric characteristics of measured constructs.
- Mobile assisted pre-test to test programming and finalized questionnaire.

Inter-Item correlation and Cronbach's Alpha will be used as indicators for reliability of scales. A threshold value of 0,7 will be used.

The qualitative study is meant to probe further into latrine use behaviours based on issues emerging from the baseline survey, and how the intervention addressed challenges and barriers to latrine use. The qualitative study is not intended to be an in-depth comprehensive qualitative assessment. In that regard, the questions and probes used in the FGD and in-depth interview guidelines will draw upon the RANAS model, baseline survey findings, and the intervention, but will not have a separate theory of change.

4.2. Secondary data sources

Please describe the anticipated secondary sources of data, if any, which will be used for this study.

We used the Census 2011 data to identify the populations and households in the five talukas of Raichur, and the SBM-G data on latrine coverage.

5. Analysis

5.1. Outcome Variables

5.1.1. Your primary outcome is latrine use. Please describe the primary and secondary outcome variables of interest using the following table:

| Outcome | Description | Hypothesis | Level |
|---|---|-------------------------|------------|
| Latrine use (behavioral outcome) | Change over time in the relative number of adult household members who use the latrine for defecation | Related to Hypothesis 1 | Household |
| Behavioral factors | Change over time in behavioral factors (described in the RANAS model) related to latrine use | Related to Hypothesis 2 | Individual |
| Safe disposal of child feces (behavioral) | Change over time in the relative number | Related to | Household |

| | | | |
|----------|--|--------------|--|
| outcome) | of households with children whose feces are safely disposed' | Hypothesis 3 | |
|----------|--|--------------|--|

5.1.2. If you plan to include covariates in your analysis, please provide a list of covariates that may be included.

No covariates planned.

5.1.3. If you plan to aggregate multiple variables into an index, which variables will you aggregate and how?

No aggregation planned.

5.2. Qualitative Analysis

What questions will be analysed using qualitative methods? Please also describe the qualitative methods that will be used (e.g. content analysis with criteria for codification).

The FGDs and interviews will be audio recorded and transcribed (in English). The transcripts and field notes will form the basis for analysis. A provision or “start list” of codes (see Myles and Huberman 1994) will be developed based on the RANAS model and findings from the baseline survey focused on structural and descriptive codes, many of which will be organized into sub-codes. As coding becomes more nuanced, this start list of codes will be modified, deleting codes that are redundant, reconceptualising codes based on the team’s interpretation of the issues emerging from the data, merging codes to form more meaningful categories, and expanding codes (i.e., developed sub-codes) to reflect the depth of the constructs being studied.

The focus of descriptive and structural coding was to capture descriptions and perceptions of the intervention and latrine use. Descriptive codes will be used to identify and explain normative events related to latrine use. Structural codes will facilitate further exploration based on the RANAS factors (risks, attitudes, norms, ability and self-regulation). Pattern coding will be used to facilitate deeper analysis of the constructs being studied. Pattern codes enabled exploration of the relationship between key constructs (or RANAS factors), and understand the nature of the influence exerted by forces external to the individual – such as the intervention or other events.

5.3. Quantitative Analysis

5.3.1. Balance Checks

5.3.1.1. How will you check balance between treatment and control groups?

Baseline values of the following variables will be compared on household and cluster level as specified in CONSORT Statements extension for cluster-randomized controlled trials:

- Latrine use of adult men, latrine use of adult women, and latrine use of children (diff ages)
- Latrine coverage
- Highest level of education of households
- Age
- Household size

The variables will be compared using independent t-tests. If major differences occur, the concerned variables will be included as covariates in an ANCOVA.

5.3.1.2. What is the specification that you will run and what variables will you include?

An ANCOVA can be described as follows:

$$\text{Var (DV)} = \text{Var (IV)} + \text{Var (CV)} + \text{Var (Res)}$$

Var: Variance

DV: Dependent Variable = Changes in Latrine use

IV: Independent Variable = Intervention condition

CV: Covariate = e.g. latrine coverage

Res: Residual

5.3.1.3. If there is an imbalance (between treatment and control groups) in one or more baseline covariates, how do you plan to address this?

See above.

5.3.2. Contamination

How will you detect and manage any potential differential contamination between treatment and control groups?

At endline, items to measure participation in any activity with regard to sanitation will be included in the questionnaire. Items will be open and aim at capturing not only activities from this project but also any other activities which the participants were exposed to.

If contamination occurs, this will be a clear limitation to the study as controlling for this contamination (e.g. as additional covariate) or excluding them from the study compromises the randomized design. Comparing households who reportedly participated in activities outside this trial and households who did not could reveal whether external activities had any effect on this study's outcomes. However, such analyses will only be descriptive since sufficient individuals for a powered sub-group analyses will not be available.

The general section described above will be followed by a specific section on participation in this intervention, exposure to intervention material, and interaction with other villagers about latrine use. It will be included in both intervention and control villages. This will capture any cross-contamination of intervention groups.

Again sub-group analyses will reveal whether this self-reported intervention participants from control villages affected behavior change. However, they should remain in the sample to obtain conservative estimates of intervention effects.

5.3.3. Attrition

5.3.3.1. What is your anticipated attrition rate and what evidence is this prediction based on?

The attrition rate is expected to be less than 10%. This is based on experiences from the data collection agency, Nielson, which has long lasting experience in longitudinal studies in Karnataka. As a worst case scenario will assume 25% attrition.

5.3.3.2. What can you do to prevent or remedy sample attrition?

Household characteristics, including telephone numbers and GPS coordinates will surveyed at census. This will enable us to track households for the subsequent panel waves. Appointment will be sought via phone in advance to make sure respondents are available. In case of unavailability of the household, several revisits will be performed.

In case a household cannot be recovered at follow-up despite these efforts, it will not be replaced. As long as attrition rate is bellow 25% this will not effect the power of the study, as 25% drop-out were over-sampled at baseline. We expect attrition rate to be less than 10%. See section 5.3.3.4 for checks whether attrition affected the integrity of the ransom sample.

5.3.3.3. How does expected attrition change your power calculations?

It is already included in the sample size stated above.

5.3.3.4. How will you check balance between attritors and non-attritors? What is the specification that you will run and what variables will you include in these balancing checks?

Remaining study participants and drop-outs will be compared regarding baseline values of socio-demographics and behaviour. In particular, the following variables will be considered:

- Latrine use
- Latrine coverage
- Highest level of education of households
- Age
- Household size

This will allow to determine, whether attrition was systematic, which would spoil the integrity of the ransom sample and constitute a limitation of the study.

5.3.4. Missing Data

Data quality will be rigorously monitored through a hierarchical structure to ensure a minimum of missing values. In case of missings in behavioral items or behavioral factors detected after the completion of data collection, households will be called through the phone to complete the data. If data cannot be completed, households will be excluded from the respective analyses.

5.3.5. Treatment Effects

Note: Many studies may have awareness campaigns where one may not be able to know whether a household participated or heard the message or not. In these cases, it may not be possible to estimate a Treatment on the Treated (TOT) effect. We therefore do not expect that all studies will provide estimates of TOT.

5.3.5.1. Intent to Treat

5.3.5.1.1. How will you estimate the (causal) effect of the offer of the treatment?

Interventions will be implemented on village level and all participants will be invited to participate in the activities. The offer to treatment effect will be estimated by comparing the change in outcome variables in treatment villages with change in control villages.

5.3.5.1.2. What is the specification that you will run and what controls will you include in your specification?

Comparison will be done using a one-tailed, independent t-test. We are not planning to include covariates in this analyse.

5.3.5.2. Treatment on the Treated

The endline survey will include items to measure intervention participation, exposure to intervention material, and interaction with other villagers about latrine use. This will allow us to estimate intervention participation for each of the four activities and will be compared to data from the campaign monitoring. We are not planning to run additional analyses, e.g. comparing participants with non-participants within the intervention villages because this would compromise the randomized design of the study.

5.3.5.2.1. How will you estimate the (causal) effect of the receipt of the treatment?

Not applicable

5.3.5.2.2. What is the specification that you will run and what controls will you include in your specification?

Not applicable

5.4. Heterogeneous Effects

Note: Since behaviour change interventions require village-level clustering to prevent spillovers, studies will likely not be adequately powered to conduct subgroup analysis, and subgroup analysis is not expected. Proposals to do subgroup analysis should be accompanied by an explanation of how studies will be able to detect differences between subgroups.

No sub-group analyses are planned.

5.4.1. Which groups do you anticipate will display heterogeneous effects?

5.4.2. What is the broad theory of action that leads you to anticipate these effects?

5.5. Standard Error Adjustments

5.5.1. How will you address clustering in your data?

The sample size mentioned above has been adjusted for clustering of the data, as proposed for example by:

Eldridge, S.M., Ashby, D., & Kerry, S. (2006). Sample size for cluster randomized trials: effect of coefficient of variation of cluster size and analysis method. *International Journal of Epidemiology*, 35, 1292-1300.

Multilevel analyses of data, considering villages as units of clustering, will be performed.

5.5.2. How will you address false positives from multiple hypothesis testing?

To control for testing two outcomes (Hypothesis 1: Latrine use of adults household members; Hypothesis 3: Safe disposal of child faeces) we are planning to use corrections as proposed by:

Benjamini, Y. and Y. Hochberg (1995). "Controlling the false discovery rate: a practical and powerful approach to multiple testing." *Journal of the Royal Statistical Society. Series B (Methodological)* 57(1): 289-300.

This procedure is specifically designed to control for testing multiple outcomes within the same experiment and does not entail substantial losses in statistical power as, for example, Bonferroni corrections do.

5.5.2.1. If you plan to adjust your standard errors, what adjustment procedure will you use? (e.g., Family Wise Error Rate, False Discovery Rates, etc.)

See above.

5.5.2.2. How will you deal with outcomes with limited variation? For instance, one option could be to decide in advance that outcomes that vary below a certain threshold will be omitted from the analysis.

We expect high variation in both outcomes. Standard deviation in latrine use computed from the SQUAT survey amounted to 0,4 and was used when computing the sample size for this trial.

List of optional attachments

Script (Optional)

You may wish to upload an analysis script with clear comments. This optional step is helpful in order to create a process that is completely transparent and increase the likelihood that your analysis can be replicated. We recommend that you run the code on a simulated dataset in order to check that it will run without errors.

Data Collection Tools (Optional)

You may wish to attach any qualitative or quantitative data collection tools, if available.