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Effectiveness of group discussions and commitment in improving cleaning behaviour of shared sanitation users in Kampala, Uganda slums

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ABSTRACT

Rationale and objective: Access to and use of hygienic shared sanitation facilities is fundamental in reducing the high risk of diseases such as diarrhoea and respiratory infections. We evaluated the effectiveness of group discussions and commitment in improving the cleaning behaviour of shared sanitation users in three urban slums in Kampala, Uganda. The study follows the risk, attitudes, norms, abilities and self-regulation (RANAS) model of behaviour change and some factors of the social dilemma theory.

Methods: A pre-versus post-intervention survey was conducted in three slums of Kampala, Uganda, between December 2012 and September 2013. From the pre-intervention findings, users of dirty sanitation facilities were randomly assigned to discussions, discussions + commitment and control interventions. The interventions were implemented for 3 months with the aim of improving cleaning behaviour. This paper provides an analysis of 119 respondents who belonged to the intervention discussion-only ($n = 38$), discussions + commitment ($n = 41$) and the control (no intervention, $n = 40$) groups.

Results: Compared to the control, discussions and discussions + commitment significantly improved shared toilet users' cleaning behaviour. The rate of improvement was observed through behavioural determinants such as cleaning obligation, cleaning ease, cleaning approval and affective beliefs.

Conclusion: Our study findings show that group discussions and commitment interventions derived from RANAS model of behaviour change are effective in improving the shared sanitation users' cleaning behaviour.

1. Introduction

More than 761 million people rely on shared sanitation facilities in the urban slums of many developing countries, especially in Eastern Asia, sub-Saharan Africa and Southern Asia (WHO/UNICEF, 2013, 2014). However, while shared facilities are a convenient alternative to families without access to private facilities, evidence from several studies shows that shared facilities are often dirty and unsafe to use (Bartlett, 2003; Rheinländer et al., 2010; Tumwebaze, 2014; Tumwine et al., 2003). Thus, they are associated with a wide range of diseases such as diarrhoea (Heijnen et al., 2014; Sijbesma, 2008; WHO/UNICEF, 2012). Evidence shows that the incidence of diseases is higher among users of shared toilets than those of single-household latrine users (Heijnen et al., 2014; Sijbesma, 2008; WHO/UNICEF, 2012). Furthermore, a study conducted in slums in India found that women preferred open defecation to using dirty shared toilets (Heijnen et al., 2014; Sijbesma, 2008; WHO/UNICEF, 2012). Improving cleaning behaviour among users of facilities could enhance both the health and non-health benefits associated with access to hygienic facilities (Diallo et al., 2007; Jenkins and Curtis, 2005; Rodgers et al., 2007). Nonetheless, research on what influences the cleaning behaviour of shared sanitation users in slum settlements is limited (Bartlett, 2003; Thieme, 2010; Tumwebaze and Mosler, 2014a, b).

There is increasing evidence that theory-based interventions are

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more effective in changing behaviour, as theoretically derived determinants provide information on significant behaviour techniques for changing targeted behaviours (Michie and Abraham, 2004; Michie and Johnston, 2012; Mosler, 2012). The RANAS model was successfully applied in a cross-sectional study on habitual cleaning of latrines conducted in rural Burundi. The authors recommend that interventions targeting behavioural factors such as commitment, self-efficacy and satisfaction with a clean latrine could be fundamental in improving cleaning behaviour (Sonego and Mosler, 2014). Therefore, we used the RANAS model of behaviour change for the water and sanitation sector in developing countries to design our interventions (Mosler, 2012). The RANAS is structured into five factor blocks (see Table 1), which are derived from social cognitive health theories such as the theory of planned behaviour (TPB) (Ajzen, 1991) and the health action process approach (HAPA) (Schwarzer, 2008):

In addition to the RANAS behavioural determinants, we used factors from social dilemma theory, particularly factors that might influence cooperation and collective action with regard to cleaning toilets (Tumwebaze and Mosler, 2014a, b). The social dilemma theory is about conflict situations from individual decision-making processes that in most cases are for the benefit of self-interests rather than those of the groups to which they belong; yet, all individuals are better off if they were cooperative (Dawes, 1980; Liebrand et al., 1992). Social dilemma theory is focussed on factors such as group size, social identity, social motives, social norms, behaviour of others and communication on understanding collective behaviour (Balliet, 2010; Dawes et al., 1988). However, there are overlaps between the RANAS determinants and social dilemma research factors, such as the influence of social norms on cooperation or promotion of health behaviours. As evidence indicates, social norms are fundamental in preventing or facilitating adoption of health-related behaviour (Bajracharya, 2003; Curtis and Cairncross, 2003; Curtis et al., 1997; Pinfold, 1999). Furthermore, various studies have emphasised the importance of communication in promoting changes in health behaviours (Bajracharya, 2003; Curtis and Cairncross, 2003; Curtis et al., 2001; Pinfold, 1999). Several recent studies have also shown that adding commitment to an intervention is effective in fostering the adoption of the targeted health behaviour (Inauen et al., 2013; Lokhorst et al., 2013). For instance, discussions and public commitment involving community members and their leaders pledging to end open defecation have been fundamental in the successful promotion of community-led total sanitation and stimulating cooperation in a number of rural areas in developing countries (Chambers, 2009; Patil et al., 2014; Pattanayak et al., 2009). While communication has been reported to be effective in fostering group identity and commitment in social dilemmas (Kerr and Kaufman-Gilliland, 1994), its application through group discussions in this study was to test its effectiveness in improving shared toilet users' cleaning behaviour.

Therefore, the purpose of this study was to determine the efficacy of discussions and commitment in increasing the cleaning behaviour of shared sanitation users. We aimed to answer the following research questions: (1) Do group discussions change shared sanitation users' cleaning behaviour and its behavioural determinants? (2) Does adding a commitment after the discussions have additional effects in changing cleaning behaviour and its behavioural determinants? (3) Which factors mediate the effect of discussions and commitment on shared toilet users' cleaning behaviour?

2. Methods

2.1. Overview of the study design and cleaning interventions

This quantitative study was conducted in August and September 2013 to evaluate the efficacy of group discussions and commitment in improving the cleaning behaviour of shared toilets' users in three slums in Kampala, Uganda. A pre-versus post-intervention study design was used in this research. The users of shared sanitation facilities were randomly assigned to discussion, discussion + commitment and control intervention types.

Based on the findings from the pre-intervention study identifying the RANAS and social dilemma factors that influenced shared toilet users' cleaning behaviour (Tumwebaze and Mosler, 2014a, b), discussions and discussions + commitment interventions were piloted and evaluated to establish their influence in improving cleaning behaviour. The discussions, which took place only once in each group among users of the same sanitation facility, enabled participants to talk with each other about how they use and

Table 1
Overview of the factors of the risk, attitudes, norms, abilities and self-regulation (RANAS) model and the behavioural change techniques (Adapted from Mosler, 2012).

RANAS factors and descriptions
Risk factors: understanding and awareness of health risks
▫ Perceived vulnerability: A person's estimate of how probable it is to contract a disease.
▫ Perceived severity: A person's assessment of how serious it is to contract a disease.
▫ Factual knowledge: A person's knowledge about how a disease is contracted, its effects and prevention.
Attitude factors: positive or negative stance towards performing a behaviour
▫ Instrumental attitudes: A person's beliefs about monetary and non-monetary costs (time and effort) or advantages and disadvantages of a behaviour and the associated health and social benefits.
▫ Affective beliefs: A person's emotional feelings such as joy, pride or disgust that arise when thinking of or performing a behaviour.
Norm factors: perceived social pressure towards performing a behaviour
▫ Descriptive norms: A person's observation and awareness of behaviours typically performed by others.
▫ Injunctive norms: A person's perceptions and awareness of behaviours typically supported or not supported by others.
▫ Personal norms: A person's belief about what to do or not to do.
Ability factors - aptitudes and confidence necessary to perform a behaviour
▫ Action knowledge: A person's know-how about how to perform a behaviour.
▫ Self-efficacy: A person's confidence in the ability to organise and execute courses of action required to manage situations in performing a behaviour.
▫ Maintenance self-efficacy: A person's perceived ability to retain a new behaviour and confidence in dealing with barriers.
▫ Recovery self-efficacy: A person's certainty to return to the new behaviour after disruptions.
Self-regulation factors: continuation and maintenance of behaviour
▫ Action control: A person's strategy of continually evaluating an ongoing behaviour with regard to the behavioural goal.
▫ Coping planning: A representation of a person's plans to overcome barriers which would impede the behaviour.
▫ Remembering: A person's ease to recall when to perform a behaviour at key situations.
▫ Perceived commitment: A representation of a person's obligation to perform a behaviour.
▫ Habit: A person's perceived regularity in performing a behaviour.