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# Drivers of sustained hygiene behaviour change: A case study from mid-western Nepal

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ABSTRACT

Behaviour change is central to the prevention of many population health problems, yet it is typically difficult to initiate and sustain. This paper reports on an evaluation of a water, sanitation and hygiene (WASH) intervention in mid-western Nepal, with particular focus on the drivers and barriers for handwashing with soap/ash and elimination of open defecation. The research was conducted during October–November 2014, two and half years following the intervention's end-point. Qualitative data were collected from the target community (n = 112) via group discussions, interviews and drawings/stories of 'most significant change'. Households' handwashing/water facilities and toilets were observed. Analysis was informed by a model that highlights environmental, psychosocial and technological factors that shape hygiene behaviours across multiple levels, from the habitual to the structural (Dreibelbis et al. 2013). Findings indicate the intervention has supported development of new norms around hygiene behaviours. Key drivers of sustained hygiene behaviour were habit formation, emotional drivers (e.g. disgust, affiliation), and collective action and civic pride; key constraints included water scarcity and socio-economic disadvantage. Identifying and responding to the drivers and constraints of hygiene behaviour change in specific contexts is critical to sustained behaviour change and population health impact.



## 1. Introduction

Behaviour change is central to the prevention of many population health problems (Aunger and Curtis, 2007; Langford and Panter-Brick, 2013). Yet few interventions have achieved health-related behaviour change that is appropriate, affordable, effective, sustained and socially equitable (Panter-Brick et al., 2006). This paper examines the drivers of sustained hygiene behaviour change following the completion of a water, sanitation and hygiene (WASH) intervention in Nepal.

Since 1990, almost 2 billion people globally have gained access to improved sanitation and 2.6 billion have gained access to improved drinking-water (WHO/UNICEF, 2014; UN, 2015). The Millennium Development Goal target of halving the proportion of people globally without access to safe drinking water has been met. Despite significant advances, an estimated 2.4 billion people lack adequate sanitation facilities and open defecation remains a common practice. WASH-related deaths from diarrhea and subsequent malnutrition occur overwhelmingly among children in developing countries (Bartram and Cairncross, 2010). Around 2.4 million deaths could be prevented annually if everyone had access to good sanitation and safe drinking-water and practiced effective hygiene behaviours (Bartram and Cairncross, 2010). Yet health risk reduction is not the only motivation for improved hygiene behaviours; other factors may be more powerful catalysts for behaviour change (Panter-Brick et al., 2006). Identifying these factors is critical to effective and sustained hygiene behaviour change.

This paper presents the findings of an evaluative study of a WASH project in a Village Development Committee (VDC) in mid-Western Nepal. It identifies the perceived drivers and constraints of sustained hygiene behaviour change, with a focus on elimination of open defecation and handwashing with soap/ash. Analysis is

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informed by a theoretical model that takes account of contextual, psychosocial and technological factors that shape hygiene behaviours across multiple levels: habitual, individual, personal/household, community and structural (see Dreibelbis et al., 2013). This paper presents qualitative data collected from project beneficiaries two and a half years following the intervention's completion.

## 2. Approaches and theories of hygiene behaviour change

In resource poor settings, a key strategy for reducing diarrhoeal disease and other WASH-related illness is hygiene behaviour change ('software') often in combination with provision or promotion of low-cost water and sanitation technologies ('hardware'). WASH-related behaviours and technologies must be adopted and maintained over time and at scale in order to improve population health. There is strong evidence that improvements in hygiene behaviours lead to reduction of diarrhoeal diseases in most contexts (Fewtrell et al., 2005).

Numerous approaches have been developed to improve hygiene behaviour. Community Led Total Sanitation (CLTS) aims to eliminate open defecation through collective local action (Kar, 2012: 95). Tools are used to raise awareness of the health risks of open defecation and to generate disgust and shame: e.g. visits to open defecation sites ("walk of shame") and quantified faeces calculations to estimate how much "shit" is circulating in the community (Peal et al., 2010; Mehta, 2010). CLTS aims to trigger demand for *non-subsidised* latrines in order to support affordable design, use of local materials, sustained replication and potential for scaling-up. School Led Total Sanitation (SLTS) uses participatory exercises and hygiene education to engage school children. It is premised on the understanding that children are open to new learning, can readily adopt new hygiene practices, and can bring about behaviour change in their communities (Peal et al., 2010). Participatory Hygiene and Sanitation Transformation (PHAST) promotes awareness of the health risks associated with poor sanitation and hygiene, aims to mobilise communities, and builds on local capacity to manage water and control sanitation-related diseases (IFRC, 2007). It supports subsidised basic sanitation construction activities that target vulnerable groups. Recent reviews have summarised evidence of effectiveness of hygiene behaviour change approaches (Peal et al., 2010; DFID, 2013). For the majority of approaches, there is little evidence to confirm sustained impact on hygiene behaviours or longer-term positive health impacts (Peal et al., 2010).

Several theoretical frameworks have also been developed that identify hygiene behaviour drivers and constraints. They differ in scope and focus: some address specific behaviours (e.g. handwashing with soap, household water treatment) and others focus on WASH practices in general; some focus on individual behaviours and others examine community, environmental and policy levels (Aunger et al., 2010; Coombes and Devine, 2010; Curtis et al., 2009; Devine, 2009; Figueroa and Kincaid, 2010; Mosler, 2012). For example, Mosler (2012) focuses on psychological determinants of hygiene behaviour such as attitude, sense of risk and self-regulation. Curtis et al. (2009) highlight the importance of habit and emotional drivers (e.g. disgust, affiliation, nurture) for handwashing (see Curtis et al., 2011; Aunger and Curtis, 2007). And Figueroa and Kincaid (2010) focus on communication models for encouraging safe water treatment and storage.

Based on a systematic review of WASH-related behavioural models, Dreibelbis et al. (2013) developed a framework for examining determinants of WASH practices: The Integrated Behavioural Model for Water, Sanitation and Hygiene (IBM-WASH) (see Table 1). IBM-WASH identifies three dimensions that influence hygiene behaviour change: Contextual (e.g. access to water and soap), Psychosocial (e.g. shared values, perceived disease risks), and Technological (e.g. availability and convenience of hardware). Each of these dimensions function across five levels: structural, community, household, individual and habitual. The model takes account of the macro triggers and constraints for change (e.g. environment, policy context) through to the micro (e.g. habit formation). This paper uses IBM-WASH to guide analysis and discussion.

## 3. Study area and intervention

### 3.1. Study area and population

Nepal is classified as a least developed country and experiences persistent social inequalities and poverty (UNDP, 2014). In 2013, 9% of deaths in Nepali children aged under 5 years were caused by diarrhoeal diseases, with over 96% of these deaths attributable to unsafe water, sanitation and handwashing (Institute for Health Metrics and Evaluation, 2013). The Government of Nepal aims to achieve universal coverage of basic water supply and sanitation services for all citizens, and end open defecation, by 2017. Endorsement in 2011 of the 'National Sanitation and Hygiene Master Plan' has been instrumental to creating momentum within the WASH sector. In 2015, an estimated 92% of households had access to safe water supply (via piped water and other improved sources) and 46% had access to improved toilets (WHO/UNICEF JMP, 2015). Yet poor and disadvantaged communities, particularly in rural and remote areas, have the lowest rates of water and sanitation coverage (Government of Nepal, 2015). In 2015, 50% of urban populations versus 18% of rural populations had water piped onto

**Table 1**
The integrated behavioural model for water, sanitation, and hygiene (IBM-WASH).

| Levels | Contextual factors | Psychosocial factors | Technology factors |
|---|---|---|---|
| Societal/Structural | Policy, climate, geography | Leadership, cultural identity | Manufacturing, financing, promotion and distribution of products |
| Community | Access to markets, access to resources, built and physical environment | Shared values, collective efficacy, social integration, stigma | Location, access, availability, collective ownership, maintenance |
| Interpersonal/Household | Roles, household structure, division of labour, available space | Norms, aspirations, shame, nurture | Access to product, demonstration of use of products |
| Individual | Wealth, age, education, gender, livelihoods | Self-efficacy, knowledge, disgust, perceived threat | Perceived cost, convenience, strengths and weaknesses of product |
| Habitual | Facilitators/barriers to habit formation | Existing water and sanitation habits, outcome expectations | Ease and effectiveness of routine use of product |

Source: adapted from Dreibelbis et al. (2013).