

Health in our hands, but not in our heads: understanding hygiene motivation in Ghana

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Accepted 1 March 2007

Each year more than 2 million children die from diarrhoeal diseases; the same number again die from acute respiratory infections. The simple hygiene behaviour of washing hands with soap represents an effective way of preventing the transmission of many of these infections. However, rates of handwashing across the globe are low, presenting a challenge for health promotion programmes. Behaviour change is not easy, and past efforts based upon health education have met with limited success. New approaches are needed. We propose that much can be learnt from the world of consumer marketing. Rather than base communications programmes for behaviour change on increasing knowledge, marketers aim to respond to the inner desires and motivations of their target audiences. This study used consumer research to investigate the factors motivating handwashing with soap in order to inform a national communications campaign for Ghana. It revealed that the strongest motivators for handwashing with soap were related to nurturance, social acceptance and disgust of faeces and latrines, especially their smell. Protection from disease is mentioned as a driving force, but was not a key motivator of handwashing behaviour. The ways in which these findings have been translated into a handwash promotion campaign are discussed.

Keywords Hygiene behaviours, promotion, consumer research

KEY MESSAGES

- Behaviour change is not easy and past efforts based upon biomedical health education have met with limited success. New approaches are needed.
- Rather than base communications programmes for behaviour change on increasing knowledge, marketers aim to respond to the inner desires and motivations of their target audiences. Health promotion can learn from this approach.
- Consumer research in Ghana revealed that the strongest motivations for handwashing with soap among women relate to nurturance, social acceptance and disgust of latrines and faeces, particularly their smell; health was a weak motivator.

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Introduction

One of the key UN Millennium Development Goals is a 66% reduction in mortality rates in children under five by 2015 (<http://www.un.org/millenniumgoals/>). Globally, diarrhoeal diseases kill over 2 million people annually and represent one of the biggest childhood killers (Black *et al.* 2003). Handwashing with soap, especially after contact with faeces, is thought to reduce diarrhoeal diseases by 42–47% (Curtis and

Cairncross 2003), making it one of the most effective interventions to reduce mortality and morbidity in the under fives. A number of studies also show that regular handwashing can reduce the risk of acute respiratory infections (e.g. Ryan *et al.* 2001), which also result in over 2 million deaths annually (Black *et al.* 2003). However, as Table 1 shows, rates of handwashing with soap across the globe are universally low. If these rates are to improve, we need to find new approaches to motivate the uptake of handwashing with soap.

In Ghana, there are an estimated 9 million episodes of diarrhoea each year. An estimated, 84 000 children die from diarrhoea each year, representing a quarter of all deaths among under fives. This represents a cost of about US\$33 million annually, while less than 5% of Ghanaian mothers were observed to wash their hands with soap after defecation or the handling of children's stools in a countrywide representative sample of structured observations. Thus, the Ghana Community Water and Sanitation Agency (GCWSA) is implementing a nationwide handwash promotion programme through a public-private partnership (PPP)¹ which aims to substantially increase rates of handwashing with soap using a marketing approach.

Understanding what drives consumers is central to a marketing approach and is fundamental to this handwash promotion programme. This paper presents the results of a nationwide study of consumer hygiene and handwash behaviour that was carried out in Ghana in 2002. It discusses the implications for the design of the programme in Ghana and considers the value of adopting industrial-style approaches to public-health behaviour change programmes in general.

Approaches to hygiene promotion

Much health promotion, especially that based on the Health Belief Model and the Theory of Reasoned Action (Nutbeam and Harris 1999), has been based on the premise that educating people about the threat of disease will lead to reductions in risk behaviours. However, past studies suggest that traditional health education such as this is unlikely to be an effective route to behaviour change; evidence for their effectiveness in promoting behaviour change in developing countries is weak (Burgers and Boot 1988; Loevinsohn 1990). For example, despite 70 years of state intervention, didactic health education appears to have been unable to achieve sustained hygiene behaviour change in Kyrgyzstan (Biran *et al.* 2005). A recent study in South Africa also found that a short Health and Hygiene Awareness and Education programme failed to produce any significant impact on a range of hygiene behaviours, including water storage and handwashing (Jagals *et al.* 2004).

This may be because local and biomedical knowledge are frequently so divergent (Curtis *et al.* 2001), and because target audiences frequently fail to recognize a link between hygiene behaviours and disease (e.g. Pinfold 1999). While to the health scientist hygiene is 'the practice of keeping oneself and one's surroundings clean, especially in order to prevent illness or the spread of infection', to ordinary people hygiene behaviours are rarely carried out for health-related reasons. Factors such as wishing to appear attractive, smell good, remove dirty contaminating matter from one's life, or protecting children are cited increasingly as reasons for being clean (e.g. Burgers and Boot 1988; Pinfold 1999; Biran *et al.* 2005).

Table 1 Prevalence of handwashing in different settings

Setting	Practice	Point prevalence	Method/study
Rural Nigeria	Hands washed with soap after cleaning a child	9.9%	Omotade <i>et al.</i> (1995), Structured observation
Rural Kyrgyzstan	Hands washed with soap after cleaning up a child.	0%	Biran (1999), Structured observation
	Hands washed with soap after using a toilet	18%	
Urban Burkina Faso	Hands washed with soap after cleaning up a child	13%	Curtis <i>et al.</i> (2001), Structured observation
	Hands washed with soap after using a toilet	1%	
Urban slums in Lucknow, India	Hands washed with soap after cleaning up a child	13%	Curtis <i>et al.</i> (1997), Structured observation
	Hands washed with soap after using a toilet	20%	
Calcutta slums	Handwashing with soap after defecation	16%	Sicar <i>et al.</i> (1987), Soap dimensions checked
Child care centres in Brazil	Handwashing after changing nappy	16%	Barros <i>et al.</i> (1999), Structured observation
Shanty town in Lima, Peru	Handwashing after defecation	12% (soap use 'rare')	Gilman <i>et al.</i> (1993), Observation
Rural North of England	Handwashing with soap after changing a nappy	42%	Curtis <i>et al.</i> (2003), Structured observation

Many years of study of hygiene and hygiene motivation in different countries and theory drawn from multiple disciplines have led us to a new approach (Curtis 2001). The range of disciplines includes psychology, consumer science and marketing, which are effective in changing consumer behaviour (Buchholz and Wordeman 2000). We propose that for behaviour to change, constraints in the environment need to be minimized to facilitate change, and ingrained habits shifted through an understanding of behavioural motivations, not just biomedical models of disease causation. Figure 1 illustrates the process of behaviour change based upon an understanding of these three factors: environment, habit and motivations.

The task of formative research, and thus this study, is to elicit those environmental factors, habits and motivations inhibiting and driving behaviour for the programme's target audiences. It must also focus on how consumers communicate, via channels both traditional and modern, to allow the development of an effective message delivery strategy.

Methods

The study was carried out in five geographical regions of Ghana—Greater Accra, Ashanti, Eastern, Western and Northern—chosen to be representative of the major ecological and socio-cultural zones of the country. For each region, nine enumeration areas were randomly selected from a national census list. Structured observations, a quantitative consumer

survey, in-depth interviews, focus group discussions (FGDs) and behavioural trials were carried out, as outlined in Table 2.

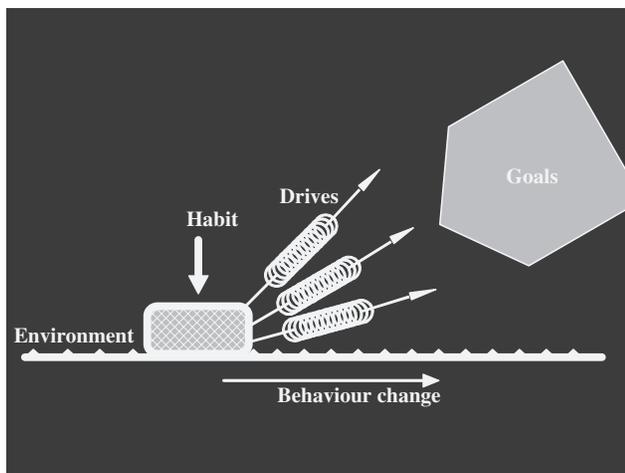
Structured observations were carried out in a sample of households selected proportionally across the population of the regions, and weighted back to the national population to provide a baseline measure of handwashing rates. The sample was further segmented according to living standard measures to ensure representative samples across all different economic bands. Though complex and expensive to perform, structured observations are the most practicable means of getting a reliable indicator of sensitive behaviours such as handwashing (Curtis *et al.* 1993). Self-reporting consistently over-estimates actual handwashing practices. Observations took place early in the morning, as this is when defecation is most likely to be observed. They involved the investigator sitting quietly in the courtyard of the index mother and child, observing what was happening, and recording all handwashing behaviour relating to the defecation of mother and child over a period of 3 hours.

The consumer survey interviews concerned socio-economic variables, the domestic environment, media exposure and self-reporting of handwashing behaviours. Four hundred and fifty mother-child pairs were included from across the enumeration areas. Within each area, residential structures were mapped and numbered. The total number of houses was then divided by 10, to arrive at a sample interval which was used to select 10 houses for each area.

Table 3 shows that the majority of women included in the consumer survey lacked formal education, were married, worked as traders, fell within the lower living standards bands and did not have a latrine within their compound, instead relying on public facilities. Over half the women relied on communal water sources.

In-depth interviews (in English and local languages) were carried out with six mothers with children under five per region. Interviews lasted an average of 50 minutes. They were recorded, translated and transcribed by Research International, within 24 hours of the interview taking place. The key aim of these interviews was to explore motivations for soap use and handwashing.

Ten focus groups (FGDs) were held, one urban and one rural in each of the five regions. A variety of techniques was used in these sessions, including soap attribute and communications channels ranking. Attribute ranking is a common technique in consumer research and involves consumers being asked to rank products or communications channels according to their favourite features, discussing this order and the reasoning behind it as they go (Reynolds and Gutman 1988).



(from Curtis (2001))

Figure 1 Drivers of behaviour change

Table 2 Distribution of study methods

Method	Aim	Sample
Consumer survey	Attitudes to handwashing, health and soap, exposure to channels of communication	450 mothers, 250 male neighbours
In-depth interviews	Motivations for handwashing with(out) soap	30 mothers
Focus group discussions	Motivations for handwashing with(out) soap	10 groups of mothers
Behaviour trials	Motivations for and constraints to handwashing	50 women volunteers
Schools visits	Documenting school latrine and handwash facilities	45 schools
Quantitative baseline – structured observations	Documenting actual handwash behaviour of mothers and other household members	500 mother/child pairs and their households

Table 3 Characteristics of sample included in consumer survey

Characteristic of mother	Frequency	
	<i>n</i> = 449	(%)
Age group		
15–24 years	94	(21)
25–39 years	275	(61)
40+ years	80	(18)
Education		
No formal education	153	(34)
Some primary school/JSS	101	(22)
Completed primary school/JSS	106	(24)
Some secondary school	51	(11)
Completed secondary school	30	(7)
Some university/higher education	5	(1)
Completed university	3	(0.7)
Marital status		
Single	45	(10)
Married/living with partner	361	(80)
Widowed	13	(3)
Divorced/separated	30	(7)
Occupation		
Housewife	57	(13)
Unemployed	35	(8)
Teacher	6	(1)
Other prof. (doc/lawyer/banker etc.)	1	(0.2)
Senior civil servant/govt. employee	2	(0.5)
Other civil servant	3	(0.7)
Self-employed	13	(3)
Saleswoman/service worker	3	(0.7)
Trader	178	(40)
Artisan	43	(10)
Driver	6	(1)
Farmer	83	(18)
Unskilled labourer	10	(2)
Other	7	(2)
Missing values	2	(0.5)
Water source		
Stream/lake/river	108	(24)
Communal well/pump/tap	236	(52)
Tap in yard	41	(9)
Tap in house	52	(12)
Toilet (n = 423)		
WC in house	32	(7)
In compound (pit/pan/KVIP/WC) ^a	108	(26)
Public toilet	260	(61)
Bush	55	(13)
Living standard measure^b		
LSM 1-2	214	(48)
LSM 3-4	96	(21)
LSM 5-6	72	(16)
LSM 7-8	41	(9)
LSM 9-10	26	(6)

^aIn 12% of compounds with toilets, the toilet was not available for use by the index mother.

^bLSM denotes 'living standard measure' and is derived from scoring material possessions and environmental conditions as well as level of education. LSM1 represents low and LSM10 high standards of living.

Following FGDs, behavioural trials were conducted with 50 women who volunteered to take part. Each was given one of nine brands of soap and asked to use the bar for handwashing only. Five to 7 days later women were interviewed for an average of 30 minutes.

Transcripts of in-depth interviews, FGDs and behavioural trials were entered into NUD*IST and coded initially under the following themes:

- The perceived advantages and disadvantages of handwashing with soap
- Attributes of soap and ideal soap types for handwashing
- The origins of handwashing habits
- The facilities used in handwashing
- Facilitating and obstructing factors.

Where text units appeared to cover several themes, they were coded in all of them. The coded units were then further coded according to emerging themes, and links between these were investigated. Quantitative data were read into STATA and analysed through tabulation and measurement of strengths of associations by computing a chi-square statistic.

Results

Overall, rates of handwashing with soap (HWWS) were low. Of 257 mothers observed to clean their child's behind after defecation, only 2.3% were observed to wash their hands with soap, a further 6.2% washing them with soapy water and 16.3% with water alone. Only 3.5% of 537 mothers were observed to wash their hands with soap after defecation, a further 2.3% washing hands in soapy water and 38.8% with water alone.

We present our findings on the motivations and constraints to handwashing following our proposal that there are three main factors to consider when attempting to motivate behaviour change: context/environment, existing habit (and force of) and behavioural motivation (Figure 1).

Context/environment

In Ghana, overall physical constraints did not appear to pose any major threats within the domestic environment, though potential physical constraints are shortage of water, the cost of soap and the difficulty of storing soap in easily accessible places. Within the public domain, lack of handwash facilities at public latrines and in schools pose greater barriers to handwashing with soap.

Lack of water

The majority of Ghanaians (62%) pay for water from public facilities, at an average cost of 500–1500 cedis (30p-£1) a day. Only a small percentage have access to a tap inside their house/compound. The crude results suggest that those with a household water connection were over four times as likely to handwash with soap after cleaning their child's behind and over twice as likely after defecation (see Table 4).

Table 4 Water source and handwashing with soap

	Street/river/dam <i>n</i> (%)	Communal well <i>n</i> (%)	Communal pump <i>n</i> (%)	Communal tap <i>n</i> (%)	Tap in compound <i>n</i> (%)	Tap inside house <i>n</i> (%)	Other/none <i>n</i> (%)	Total <i>n</i> (%)
Handwashing with soap after cleaning the child	7 (7)	7 (17)	7 (19)	16 (15)	3 (8)	17 (39)	1 (10)	58 (16)
	99	42	36	104	37	44	10	372
Handwashing with soap after mothers' toilet	7 (20)	7 (50)	1 (6)	5 (17)	3 (33)	8 (40)	0	31 (24)
	35	14	17	29	9	20	4	128

The qualitative data also suggest that for some people, water shortage may present a barrier to handwashing:

'At times we may face water shortage problems that may pose problems'.

However, no association between HWWS and other water sources was found, suggesting that once water is sourced outside the compound there is no relationship between water source and handwashing. Further, with over twice as many people washing their hands with water alone rather than with soap, it is likely that lack of water is more of a perceived barrier than an actual one.

Lack of soap and soap accessibility

Soap was found in 96% of households. While a weak association was found between affordability of soap and HWWS, the relationship was not statistically significant. Further, some women quoted the expense of soap being a problem:

'I did not have the money to buy soap'

'I am almost always feeling that I do not have enough soap to meet my soap needs'.

But among those already HWWS, regardless of economic status, lack of soap was not perceived to be a barrier to the practice. Access to soap at key moments, however, does appear to influence the practice of HWWS:

'Sometimes when I am on the roadside selling I don't have soap'

'Since the distance from the toilet to my house is a little far'.

Finding a safe and appropriate place to store soap is also a problem, as there is a concern that neighbours or children might steal or waste soap, leading to the practice of intentionally hiding soap in inaccessible places:

'we put the [luxury] soap under the bed... we put it there because we want to prevent the children having access to it'.

Furthermore, soap is not available at the majority of public toilet facilities, which are used by 58% of the sample.

Many women favour laundry/multipurpose soap for handwashing. Because it is cheaper, there is less concern

about hiding it, allowing its storage in a convenient and visible point:

'I always like to keep it at a vantage point where I can always see it'.

Convenient storage does appear to influence HWWS; 61% of mothers observed using soap to wash their hands after defecation took it from a nearby table.

Habit

Habit can be defined as repetitive, non-reflective behaviour (Lindbladh and Lyttkens 2002) often developed in childhood. It clearly influences hygiene behaviours in Ghana, with women practicing the behaviours they were taught as children, including handwashing with or without soap:

'That is what I do ever since I was a child. I remember... they kept telling me to wash my hands with water, but they never mentioned soap'

'It's not habit'.

The qualitative data thus appear to indicate that often women simply do not use soap because they were never told to and therefore never developed the habit of HWWS. The quotes show that habits can be so strong that it is difficult for respondents to find any other explanation for their practices aside from what they were taught as a child.

Behavioural drives

Broad classification of the motives for hygiene behaviours, including HWWS, described by mothers yielded three key themes:

- Nurture: the desire to care for, look after and protect children
- Disgust: the desire to avoid anything contaminating (sometimes imaginary) (Curtis and Biran 2001; Pinker 2002)
- Social concerns: desires to be both accepted by and to gain status in society.

Uniting these concerns is a general desire to keep oneself, one's children and one's environment *clean* and *neat*.

Nurture

When asked about their priorities in life, mothers said that looking after their children was of utmost importance and a source of joy to young mothers:

'Caring for our children is the most important and is of great concern to us mothers'.

A desire to nurture plays a strong role in motivating the bathing of children, but in some cases it drives HWWS too:

‘Because I am a nursing mother I always feel good when I touch my child with clean hands’.

Mothers felt it was their duty to nurture their children in order to protect their health, and also to ensure that they are accepted within society:

‘[I wash my hands] before carrying a baby so that I don’t infect the child with any disease’

‘When they even go out to play with their friends, nobody call them names, like they smell bad or are dirty children, and it’s true, because they always smell very nice’.

Making sure children are fit and healthy also ensures their longevity and ability to care for their parents in old age:

‘They will take care of us in the future, so we should make sure they are healthy’.

Nurture motivates a host of caring behaviours, handwashing with soap representing just one such activity.

Disgust

A prime motivator of handwashing (sometimes with soap) appears to be the urge to remove any signs of contamination from the body’s surface. In particular, bodily substances such as sweat and faeces and anything associated with public latrines are disliked and engender a sense of disgust. This leads to a desire to remove them from the hands. Contamination may be seen, smelt, felt or even imagined to permeate the body, olfactory cues appearing to provoke the strongest disgust response:

‘I don’t want the scent of that thing [faeces] to remain on my hands lest I forget and use my hands to eat’

‘Sweat smells so badly and needs to be removed’

‘After visiting the toilet due to the bad smell there you need to keep the hand very clean’.

Feelings of contamination are particularly pronounced after using public latrines. Some women are so disgusted by the smell and squalor of the public latrines that they continue to feel uncomfortable after using them until they have bathed their entire bodies, over twice as many women (9%) being observed to bathe than HWWS after defecation (3.5%):

‘One has to immediately take her bath for the scent of the toilet to leave’.

This feeling persists even in the absence of indicators of contamination being left on the body, women *feeling* smelly after defecation, due to the intense odour and filth of public latrines:

‘I feel smelly after defecating’.

Associated with a strong aversion to anything related to public latrines is a pronounced dislike of flies, which are perceived to move between faeces and food, toilets and kitchens:

‘Flies normally settle on human excreta, and later on deposit on your body’.

HWWS is practiced when hands are sticky, greasy or smelly:

‘We use water alone to wash our hands if we have not touched dirty things and use soap and water to wash our hands after eating’.

Further, hands are frequently not washed with soap before eating, not only due to the absence of cues of contamination but also due to the fear that the strong scent of toilet soaps might contaminate food:

‘You will not get the appetite to eat the food well if the soap lingers in it’.

Hands are also rarely washed before food preparation as women believe that:

‘As you put your hands in water whilst cooking you clean away all dirt’.

It seems that when mothers are aware of sensory cues to dirty hands, such as the feeling, the sight or the smell of contaminants, hands will be washed. In addition, when disgust is heightened, by recent contact with filthy toilets, for example, the sense of contamination may be enough for hands to be washed, even in the absence of direct sensory cues. Conversely, in the absence of sensory cues of contamination and/or disgust experiences, soap is not used to wash hands. Heightening this feeling of contamination may thus be one route to encourage HWWS after contact with faecal material.

Social concerns

In most societies cleanliness acts as an indicator of both status and good health (Schama 1988; Douglas 2002). This certainly holds true in Ghana, where acceptance and respect within society and the desire to be perceived to be *clean* and *neat* are key drives for hygiene behaviours. These terms are used repeatedly.

Cleanliness is said to reflect people worthy of respect, while dirty people are considered to be both uneducated and unattractive:

‘People admire you when you are clean’

‘They are dirty people... bad upbringing’.

People that smell bad are avoided by others, emphasizing the need to bathe with soap to remove the odour of sweat and also that of public latrines:

‘Because when you are dirty and go near others they will say that you smell bad’

‘Dirt may put off the most promising of suitors’.

Further, feeling clean and presentable is central to finding the confidence to socialize with those around you. Thus, HWWS occurs so that:

‘I feel fine to gather the confidence to go near friends’.

This is further reflected in an increased propensity to HWWS and the provision of soap before eating when guests are received—while hands are not normally washed with soap before eating, visitors are offered luxury soaps to wash their hands with:

‘It is nice to give such soaps [luxury] to your visitors, it speaks well of you’.

The use of soap is important not only to remove negative odours from hands and body, but also to replace them with sweet scents, and perfume is a major attribute in the choice of which brand of soap to purchase for different purposes. However, it is *neatness* that plays the biggest role in gaining respect and provides a key driving force for HWWS:

‘Even if you are not polite and well-mannered, your neighbours will respect you if you are neat’

‘It makes me look neat whenever I finish defecating and wash my hands’.

Health

Health is often thought to be a primary motivator of hygiene behaviour. In our analysis, while health concerns appeared to drive HWWS, they rarely represented a primary driver. Health concerns were often nested within a fear of contamination (disgust) and the desire to nurture one’s child where cleanliness acts as a badge of good health. Dirt and bad odours represent a generalized threat to health and social life:

‘Because I want to be *clean* and have good *health*’

‘Soap now serves as a medicine which prevents us from *dirt* which normally leads to sickness’.

Bad odours and dirt are both believed to cause sickness:

‘When I visit the toilet I need to wash my hands, if not the scent and dirt will cause sickness’.

It has been noted that flies are disliked and cause disgust due to their link with both faeces and food. By extension, some mothers fear that flies carry germs, probably because they have seen them touch the faeces and then food which is eaten:

‘To get rid of the germs caused by the big flies in the toilet’.

Health is of greatest concern to mothers when in conjunction with nurturance, many mothers stating that they wash their

hands in order to protect the well-being and health of their children:

‘We wash our hands because we don’t want germs and dirt to get in our children’s food and that will save them from falling sick’.

However, while hygiene practices are sometimes explained by mothers in terms of the germ theory of disease, more often the real concern is with dirt as a generalized threat to health and social well-being. Hands are not thought to play a major role in preserving health, provided gross contaminants are removed. There is therefore little motivation to wash hands after faecal contact when there is no visible or detectable contamination.

Discussion

The data reveal that rates of handwashing with soap in Ghana are low, as observed in many localities across the globe. Only 3.5% of mothers were observed to handwash with soap after defecation, only 2.3% after wiping a child’s bottom. The challenge of the Ghana National Handwash Programme is to substantially increase these rates by the end of 2005. Our consumer research provides insights into how this challenge might be met and into what factors might motivate handwashing and broader hygiene behaviours across the globe. It illustrates that there are other motivations for hygienic practice, beyond a rational fear of disease threat, and how a marketing approach using consumer research might prove effective in eliciting behaviour change.

In our model, behaviour and the ability to change it are determined by three primary components: habit, environment/context and motivating factors.

Habit

Though handwashing with water alone is a common habit, the use of soap is not part of the habitual behavioural routine of most mothers after coming into contact with faecal material or before contact with food stuffs. A key task of the Ghana programme is to establish the use of soap in the handwashing routine. This may be best done at life-change events such as when mothers give birth or when children are at school, as it is at these times that people may be most susceptible to behaviour change (Curtis 2001). The programme especially wishes to target the poorest members of society who are not only at greater disease risk, but are less prone to behaviour change and more reliant on habit than richer members of society who are more used to having choices in life, and for whom habit change carries less risk (Lindbladh and Lyttkens 2002). Giving such mothers a gift of soap at the birth of a new baby, introducing handwashing with soap at public latrines, which are used by poorer sections of society, and programmes to bring piped water to the homes of the disadvantaged could have disproportionate benefits to health.

Physical environment

The physical environment does not prevent HWWS in the household in the general population. Almost every household

had soap, though this was used for bathing and laundry rather than for handwashing. Every household had water, though acquiring it requires different levels of effort and cost. However, HWWS after defecation is hampered by the lack of facilities outside public latrines, where over 50% of the population defecate. Constructing handwash facilities outside public toilets will remove a key barrier and also serve as a visible reminder to HWWS. The construction of such facilities might also act to strengthen the social motivation to wash hands; in the early mornings and evenings there are long queues outside public latrines in Ghana and everyone can see who goes in and who goes out, and who does and does not wash their hands with soap.

Behavioural motivation

In the face of relatively few environmental barriers to HWWS, the Ghana programme emphasizes the development of communications strategies to effect behaviour change. We have shown that disgust, nurture and social acceptance represent strong motives for carrying out hygiene behaviours in Ghana, a concern for *cleanliness* and *neatness* uniting all three. Similar patterns have been found elsewhere (Curtis *et al.* 2001; Biran *et al.* 2005).

Disgust was found to be a strong motivation for hygiene behaviour. This is not surprising since disgust has been proposed to have evolved primarily to cause people to avoid cues in the environment that might spell disease risk. Operating unconsciously, it causes people to be instinctively averse to potential disease threats such as bodily fluids, decaying food or parasites (Curtis and Biran 2001; Curtis *et al.* 2004). Disgust is also possibly central to nurture and social status due to its posited evolutionary role as a mechanism (albeit unconsciously) arising from perceived disease threats (such as faeces) in the environment (Curtis *et al.* 2004). However, it relies on the existence of sensory cues to activate it. This means that in the absence of such cues people do not feel disgusted, unclean or threatened. Only when they have been in contact with very disgusting public toilets is the need to wash afterwards felt, and this does not operate reliably. Thus, a major challenge within the communications programme is to make people feel contaminated (and unclean) and/or disgusted when hands remain unwashed after contact with faeces or before contact with food. The power of this message might further be strengthened by its combination with either the desire to protect and care for children or to be accepted within society.

Applications

The results of this work along with information about the channels of communication that reach the target audiences in Ghana are being combined to design a professional communications strategy with the assistance of marketers from the soap industry. A mass media campaign capable of standing out amongst current commercial marketing efforts is being developed alongside a district programme working with health and school facilities, and a direct consumer contact programme of travelling events. All use the same motivational platforms derived from the formative research, coupling

the need to make contamination sensed after defecation with the desire to protect and care for children. In the longer term, it is intended to also address issues such as the lack of facilities in public toilets and schools, as well as advocacy for household water connections.

Through understanding these aspects of the behavioural model, behaviour change can be achieved, as observed in Burkina Faso, where a small-scale hygiene promotion programme achieved significant behaviour change using a similar approach to Ghana (Curtis *et al.* 2001). Here, Project Saniya carried out extensive formative research before launching into a communications programme based upon target audience motivations rather than health messages. Between 1995 and 1998, rates of mothers' HWWS after defecation rose from 1 to 17%, while rates after cleaning a child's bottom rose from 13 to 31% (Curtis *et al.* 2001).

Limitations

One of the key limitations of this approach is that consumer research itself is limited by what people can express. Much behavioural motivation is deep-rooted in ancient parts of the brain. According to Zaltman (2003), 95% of human thinking takes place in the unconscious. While people may give reasons for the behaviours they are exhibiting, when interrogated, answers may represent the post-rationalization of behaviour rather than true behavioural motivations. According to Lowenstein:

'Rather than actually guiding or controlling behaviour, consciousness seems mainly to make sense of behaviour after it is executed' (Lowenstein 2001: 503).

This means that self-reporting methodologies frequently fail to gain significant insight into behavioural motivations without in-depth and skilled probing.

Further, even if people can understand why they do things, they may not wish to express these reasons because they go against social norms and values (Aunger 2004). In many societies, faeces often represents a taboo subject, something so offensive that it should not be discussed. This is true of Ghana, where it is customary to ignore people in the mornings until they have fulfilled their daily ritual of visiting the public latrine and returning home to bathe to rid themselves of any real or imagined contamination associated with the visit (van der Geest 1998). Factors such as disgust, sexual desire and status drive are thus not readily admitted to. This presents a major challenge and means that such research can only be carried out by skilled interviewers.

As the methods used in this approach are primarily qualitative, it is hard to quantify which of the identified motivating factors are most important and most likely to drive hygiene behaviours. However, the process of testing promotional materials at each stage of their development should allow the strongest motivators to be identified.

Despite the limitations of consumer research (especially in its struggle to understand the unconscious motivators of human behaviour), this study shows how much can be achieved via a focused and intensive programme of formative research.

Conclusions

Hygiene promotion is unlikely to be successful unless its messages are based upon the hopes and desires of the target population, an idea central to marketing. By borrowing techniques from industry, by investigating target audiences as consumers expected to make behavioural choices on a range of factors, including but not only health, we were able to propose novel means to promote safe handwashing behaviours. The nationwide programme based on these approaches that is now up and running will be the target of intensive scrutiny, and lessons as to what works and what does not in changing behaviour will be learnt. In the meantime, formative research offers a powerful tool in the hands of experienced researchers, to lay the ground work for effective behaviour change programmes.

To successfully promote healthy hygiene behaviours we need a shift in our approach, to learn from marketers and, more importantly, from our target audiences themselves. Health may be in our hands, but it is not always in our heads.

Endnote

¹ The programme is a collaboration between the Government of Ghana, Unilever, PZ-Cussons, Association of Ghana Industries and Getrade, supported by the World Bank, The Water and Sanitation Programme, Unicef, DANIDA, DFID, AED and LSHTM.

Acknowledgements

Bob, Mimi, Adam, Eileen and Rachel at the Hygiene Centre; Param, Jennifer, Lene, Kate and Jason at the World Bank, Washington DC; Yuri Jain, Ebow Spio and Unilever Research Ltd; The Research International, Ghana, Team; World Bank and Community Water and Sanitation Agency, Ghana.

Funding from Bank-Netherlands Partnership, Water and Sanitation Programme, World Bank, Ghana Community Water and Sanitation Agency, Unilever Research Ltd.

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