



Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Hygiene and sanitation among ethnic minorities in Northern Vietnam: Does government promotion match community priorities?

Thilde Rheinländer^{c,*}, Helle Samuelsen^a, Anders Dalsgaard^b, Flemming Konradsen^c

^a Department of Anthropology, University of Copenhagen, Denmark

^b Department of Veterinary Disease Biology, Faculty of Life Sciences, University of Copenhagen, Denmark

^c Department of International Health, Immunology and Microbiology, University of Copenhagen, Oster Farimagsgade 5A, Entrance P, 1353 Copenhagen K, Denmark

ARTICLE INFO

Article history:

Available online xxx

Keywords:

Vietnam
Hygiene
Sanitation
Ethnic minorities
Practices
Perceptions
Promotion
Intervention
Body

ABSTRACT

Improving sanitation and hygiene to prevent infectious diseases is of high priority in developing countries. This study attempts to gain in-depth understanding of hygiene and sanitation perceptions and practices among four Ethnic Minority Groups (EMGs) in a rural area of northern Vietnam. It is based on extensive participatory observations in 4 villages and 20 case households over a period of six months (May–October 2008). In addition, 10 key informants and 60 household-members were interviewed and 4 focus group discussions conducted.

The study found that among the four selected EMGs the cultural perceptions of hygiene and sanitation which inform everyday hygiene practices did not differ substantially and were similar to hygiene explanations found in the rural majority population elsewhere in Vietnam. However, the difficult living conditions, particularly in highland communities, reinforce a sense of marginalization among the EMGs, which had great impact on how they perceive and respond to government sanitation interventions.

The enclosed latrines promoted by authorities are met with reluctance by the EMGs due to cultural perceptions of the body as permeable and therefore, vulnerable to 'dirty air' such as bad smells from human faeces. In addition, the prioritization of specific sanitation hardware solutions by the central government aimed at increasing coverage creates expectations and dependency among the EMGs that hygiene 'comes from the outside society', resulting in low levels of community initiated actions.

Based on these findings, we suggest that future hygiene promotion strategies aim for a closer match between community priorities and government hygiene policies, e.g. by allowing for a larger diversity of low-cost sanitation solutions. Scaling up participatory community-based hygiene promotion is also recommended to curb dependency and spark initiatives in ethnic minority communities. Finally, interventions should focus on hygiene "software" - promoting hygiene behaviour changes known to effectively prevent hygiene related diseases.

© 2010 Elsevier Ltd. All rights reserved.

Introduction

Vietnam is characterized by having a strong state and health is a key objective of state policies and governance (London, 2008). Hygiene has been a top priority since President Ho Chi Minh, in 1961, stressed for all children to 'maintain very good hygiene' (Giù gìn ve sinh that tot), a phrase still being taught in schools all over Vietnam (Ho Chi Minh, 1961). In 1999, the focus on improving environmental health was boosted by initiating the donor supported National Target Programme for Rural Water and Sanitation.

It focuses heavily on the construction of safe water supply and sanitation facilities in villages. To increase affordability of sanitation, the government is currently relying on subsidy-driven sanitation, by offering financial or hardware subsidies (around 0.5 million Vietnamese Dong, app. 28 USD) to households constructing nationally approved and standardized models of latrines (Ministry of Health, 2005). The cheapest variation and a frequently advocated type of latrine in rural areas is the composting latrine with a closed concrete superstructure, slab and underground vaults for storing the faecal matter. It costs approximately two million Vietnamese Dong (app. 115 USD) to construct. The traditional overhung fish-pond latrine used by rural residents in Vietnam for centuries, has recently been banned due to fears of transmitting parasite infections from fish to humans. In 2005, hygiene promotion was added

* Corresponding author. Tel.: +45 35327626; fax: +45 35327736.
E-mail addresses: thtr@sund.ku.dk, thilder@parknet.dk (T. Rheinländer).

as a programme component, to boost the previously low priority given to 'software' interventions. The promotion methods presently used consist mainly of information materials (posters, flyers and guidelines) and training hygiene advocators such as village health workers to advocate sanitation and safe water use. Thus, improving hygiene and sanitation is now firmly stated as part of public health policies in Vietnam, in what could be called a 'body politics' (Scheper-Hughes & Lock, 1987) understood as government intentions aimed at governing, regulating and monitoring hygiene behaviour.

Vietnam hosts a total of 53 officially recognized EMGs according to government classifications, making up 14.5 percent of the total population, and 44.7 percent of the population categorized as poor (The World Bank, 2009). These groups live mainly in rural uplands and mountainous areas of the country. During the last decades, the Vietnamese government has implemented various economic and social reforms targeting ethnic minorities to improve their living standards. But data show that ethnic minorities still experience increasing poverty and economic disparities compared with the Vietnamese majority population (the Kinh group) (Teerawichitchainan & Phillips, 2008). Also, uptake of water and sanitation facilities is slowest in areas with high concentrations of ethnic minorities. Official statistics from 2004 concluded that 71% of the population in the north east had no or substandard pit latrines and only 18% had safe water supplies (General Statistics Office, 2006). The burden of hygiene-related diseases is also particularly high in the northern region with high levels of diarrhoea, helminth and trachoma infections (Department of Preventive Medicine and Environment, 2009; Khandekar, Ton, & Do, 2006; Shaikh, Haran, & Hatcher, 2008). Health surveys shows that minority children in the northern and central highlands consistently experience higher risks of malnutrition than Kinh children (General Statistical Office, 2003), which can be partly ascribed to poor hygiene and sanitation.

Poor socio-economic factors and access to water and soap influence hygiene practices (Schmidt et al., 2009). But research has also shown that motivations for individuals to practice hygiene are often not based on biomedical knowledge or rational calculations of risk. Health and hygiene initiatives therefore need to be culturally and socially appropriate to be successful (Panter-Brick, Clarke, Lomas, Pinder, & Lindsay, 2006). Douglas underlines such socio-cultural hygiene factors when defining dirt as things classifiable as 'out of order' according to local norms (Douglas, 2002). Dirt and pollution avoiding behaviour can therefore be interpreted as ways of maintaining order and protecting bodily, social and spatial borders. Campkin and Cox (2007) further highlight dirt avoidance in relation to domestic, urban and rural borders. Hence, socially constructed perceptions of hygiene and dirt operate metaphorically to suggest borders between clean and dirty places.

Many studies also highlight symbolic, social and cultural driving forces for hygiene practices, such as indicating a higher social status by having a latrine or signalling good motherhood when keeping children hygienic (Jenkins & Curtis, 2005; Scott, Curtis, Rabie, & Garbrah-Aidoo, 2007). Similarly, Rheinländer et al. (2008) found that the social desire for neat appearances was more important for street-food vendors than biomedical food hygiene. A recent review of hand washing interventions summed up factors such as disgust, nurture, and comfort to be among the key drivers for hand washing across 11 developing countries (Curtis, Danquah, & Aunger, 2009).

Few in-depth studies have been published on hygiene perceptions in Vietnam. One such study highlights social norms of hygiene as very influential for caregivers' child hygiene behaviour (Dearden et al., 2002). Other studies highlight the influence of miasmatic beliefs inscribed into Vietnamese medicine, according to which wind, air and smells are able to permeate the body and cause diseases. This results

in disgust towards smells from human and animal wastes and stresses the importance of well-aired living premises (Craig, 2002; Knudsen et al., 2008). Hence, social and cultural values of hygiene are embodied in everyday hygiene practices. Using Scheper-Hughes & Lock's expression (1987), local perceptions of hygiene are inscribed in the 'social body' and hygiene initiatives are therefore expected to be most effective when building on in-depth understandings of social practices and the specific cultural context.

This study aims to gain an in-depth understanding of hygiene and sanitation perceptions and practices among four EMGs in a rural area of northern Vietnam, with the goal of informing and matching future hygiene interventions and policies in Vietnam with community priorities.

Methods

Six months of field work was conducted from May–October 2008 in four ethnic minority villages in two rural communes in the Lao Cai Province of Northern Vietnam. The study adopted a qualitative research approach to gain an in-depth understanding of the context and conditions of daily life. By triangulating qualitative methods, a comprehensive set of data was sought (Mays & Pope, 2000) covering various aspects of how people 'act' and 'think' when it comes to hygiene and sanitation. All field work was conducted by the first author, assisted in logistical matters and translation by a female Vietnamese field assistant who was fluent in English and had previous experience in supporting qualitative field studies in the same region of the country. The study was approved by the Vietnamese Ministry of Health and local authorities in the province and study communes.

Four ethnically homogenous case villages were selected on the following criteria: 1) they should represent an ethnic group living in highland and lowland areas, 2) be accessible by motorbike all year round and 3) represent the four most numerous ethnic groups of Giáy, Tày and Xá Phó (all lowland villages), and red Dao (highland village). In this paper, the four villages will be anonymous and referred to by the ethnic group of the villagers to protect the anonymity of informants. From each case village, the first author selected five case households with children of five years or below for in-depth studies. This was done after conducting exploratory village walks recording essential village infrastructures, socio-economic status (poor or not poor), housing conditions, and water and sanitation facilities for each household in the villages. Case households were purposefully selected to represent the greatest diversity of these factors. Throughout the fieldwork, village profiles were developed, including descriptions of environmental hygiene conditions and important events, etc. The first author and the assistant socialized and took active part in the daily life of the case households during four to 10 visits. Visits lasted from a few hours to whole days over a four week study period for each village. Diaries containing family profiles, observation notes and photos were developed for each case household. Observations of domestic and personal hygiene, cooking routines, child care, farming and animal husbandry activities, village rituals and social events were carried out. All water and sanitation facilities were also visited.

A total of 10 semi-structured key informant interviews were conducted with representatives from all villages, to obtain information about health, water, hygiene, water and sanitation standards, village development and hygiene policies (three village health workers, four village heads, two local union leaders and one highland diviner). Many semi-structured and un-structured interviews were conducted in each case household with a minimum of three semi-structured interviews per household lasting 30 to 60 min. In total, the first author interviewed seven grandmothers, six grandfathers, four adolescents, 20 men and 22 women (aged 18–43).

In addition, four gender segregated focus group discussions (FGDs) were conducted; two in a lowland village and two in a highland village. In total, 12 men (aged 19–60) and 14 women (aged 19–56) participated in the FGDs. Participants were adults from households with varying socio-economic status and hygiene facilities chosen by the first author. All interviews and discussions had the purpose of investigating practices and perceptions of hygiene, sanitation and health, including perceived barriers to improve hygiene and sanitation in the home, family and village.

All interviews were conducted by the first author in English and translated into Vietnamese by the assistant. FGDs were facilitated in Vietnamese by the assistant. In the highland village, a young Dao woman who spoke fluent Vietnamese supported the translation for women during some interviews and the FGD. The assistant produced ad verbatim transcripts in English of all interviews and FGDs. A third party researcher performed back translations and reviews of the first interview transcriptions to ensure high quality. To ensure reflection and investigation of upcoming issues, observations were continuously discussed with researchers from different disciplines within the research project (SANIVAT). The first step of data analysis followed the principles of systematic qualitative content analysis (Graneheim & Lundman, 2004), reading through and organising data in themes, meaning units and analytical categories. The next analytical step used principles from hermeneutics, drawing on theories and works of Douglas, Campkin and Cox, Scheper-Hughes, and miasmatic concepts from Vietnamese medicine.

The study was approved by the Vietnamese Ministry of Health and local authorities in the province and study communes. The first author informed all households that participation in the research was entirely voluntary with the option of withdrawing from the project at any given time. All participants were ensured anonymity and confidentiality and oral consent was obtained from as many adult household members as possible (at minimum from the head of the household and his wife).

Study area

About 85% of the population in the two study communes are ethnic minorities and about 40 per cent of the households are categorized as poor households (monthly income less than 200,000 Vietnamese Dong, app. 11.5 USD per person) with a higher concentration of poor households in highland communities (Department of Health, Lao Cai district, 2008).

The two lowland villages of Giáy (63 households), and Tày (33 households,) were similar in terms of socio-economic and geographical features; both villages were clustered in a valley 2–4 km on dirt road from health clinics, local government offices, schools, and markets. Twenty percent of households were categorised as poor and most lowland families had stable incomes from small-scale animal husbandry and irrigated paddy fields in the valley. The majority of men also took up seasonal construction or mining jobs, while most women sold home grown vegetables at markets. A few family members ran small shops or had government jobs. All but a few families lived in solid wooden houses with plastered walls, concrete floors, stable electricity supply, and with commodities such as motorbikes, radios, TVs, wooden furniture and sufficient clothing. Families typically consisted of five to seven members.

The lifestyle and living conditions of the red Dao's in the selected highland village (35 households) differed significantly from the Tày and Giáy in the lowland. The village was located 15 km from the communal centre on a steep dirt road and was scattered around a large area on the verge of a wild forest. Approximately 45% of the households were categorised as poor. The community relied

on cultivating rice and maize on the mountain slopes and supplemented income by growing and selling medical forest plants. The majority of villagers lived in extended households with up to 11 people under one roof. Houses had crude wooden walls, dirt floors and were sparsely equipped with unstable low-tech hydro-electricity supply. Most families had a radio and a motorbike as their only commodities.

The Xá Phó people have traditionally lived in the forest covered hills, but due to overcrowding some villages were relocated into the valley by the government in 2004–2006. The selected Xá Phó village was resettled into the lowland village and therefore bore both highland as well as lowland characteristics. As with the red Dao, working conditions were difficult since families cultivated sloping highland fields. Adults had long working hours and sometimes spent several days working in the hills sleeping in small field huts. With the help of government subsidies, villagers had built new and solid houses of bamboo and wood, but all households were categorised as poor and were very basically arranged with dirt floors and an unstable electricity supply. Only a few families could afford radios, TVs or furniture. Many wore threadbare clothes, walked barefoot and had money only for the most basic necessities such as salt and oil.

Findings

Environmental sanitation and hygiene in study villages

The study did not find major differences between the Tày and Giáy ethnic villages in the lowland regarding hygiene and sanitation conditions, hygiene routines and practices. Environmental village hygiene was well organized with members of local Unions arranging weekly hygiene campaigns to collected garbage, clean drainage systems, etc. Families cleaned their own household surroundings, kept animals in pens and had fenced off gardens. Most households had access to water from sedimentation tanks or wells, but due to seasonal water scarcity or water scheme failures, all households depended on untreated river or stream water for domestic purposes. Of the 10 case households, four households had access to pit latrines or overhung fish pond latrines made of temporary building materials. None of these latrines were well maintained. Three families had no latrines and relied on streams and fields for defecation. Only three government employees with higher salaries had invested in concrete bathrooms and latrines, which were kept very tidy and clean. Domestic hygiene was practiced on a routine basis by all families. Residents worked in their fields nearby and had all meals at home, while grandparents and parents took turns cooking, cleaning and taking care of the children at home. This allowed families to keep homes tidy by sweeping floors, doing the dishes and washing kitchen utensils. All families also had boiled drinking water available at all times and the majority of households had soaps available (e.g. shampoos, detergents and bar soaps). But it was observed that no adults routinely washed their hands with soap or guided their children to do so.

Compared with the lowland villages, the sanitation facilities of the red Dao in the highland were much poorer. Only three households in the whole village had access to a latrine. Cattle, pigs and poultry were free roaming and there was not systematic waste collection. Due to long working hours in the highland fields, people said they always used the forest or fields for defecation. Most households depended on unsafe water sources such as unfiltered stream water for all domestic purposes. Drinking water was boiled for home consumption, but people also indicated that they regularly drank water directly from cool springs during work in the hills. Observations revealed that women responsible for all household

work had very little time left for domestic and child hygiene. They came home late in the evening only to cook, eat and sleep. Children were bathed on a weekly basis while adults took daily bucket showers in kitchens or streams. Only very old or weak people stayed at home to watch the toddlers and do household chores. Households and kitchens were not routinely cleaned and soap for hand washing was only used if hands were visibly greasy or dirty from handling waste or soil.

In the Xá Phó village, the environmental sanitation standard was fairly high, despite the difficult living conditions, since the government had subsidised all animal pens and provided water tanks. But, as observed in the other villages, water tanks frequently ran dry or broke down so families used untreated stream water for various domestic purposes. As a response to a diarrhoea outbreak in 2008, the government had also constructed simple pit latrines for all households. However, none of the four pit latrines belonging to the five case households were used by the families. Adults explained that they defecated in the fields during work since they, just as the red Dao, spent most of their time working in the highland. Further, water was often drunk untreated from cold streams, where they also took their baths. As in the highland, parents also returned home very late, prepared a basic meal and went to sleep. Children were often left at home with older siblings and elderly, who would occasionally stay at home to do household chores. No one was observed to practise routine hand washing and women said they only invested in soaps if they had money to spare.

Embodied hygiene: the role of order, air and smells

When exploring motivations for practising hygiene, some differences between the lowland and highland were noted. The two lowland communities of Tày and Giáy articulated a strong focus on the need to keep order by eliminating dirt from the household domain, while this was less apparent among the red Dao in the highland. Secondly, across all EMGs we uncovered cultural miasmatic perceptions of the body as permeable and in risk of being harmed by 'dirty' air.

Keeping order – eliminating dirt

During interviews and focus group discussions conducted in lowland villages, hygiene behaviours were verbalised as social habits with the overall aim of maintaining spatial order and delineating dirt from the indoor environment. A group of men described this: *"I feel dirty in the house; If one-two days without sweeping, the house looks dirty (bẩn) and messy (bề bộn), not tidy (ngăn nắp), not neat (gọn gang). [...] It is only clean when it is neat. If our eyes see that... it is... I can't describe it! [...] If we leave it like that, don't clean up then when we come back, and the more we look the more... unacceptable!"* (FGD men, lowland) While neatening of the domestic area was an important everyday priority in lowland households (e.g. sweeping, ordering tea sets and cleaning cutlery,) observations revealed a higher tolerance in the highland community, towards disorderly kitchens and dirty household surroundings.

But both lowland and highland people expressed low tolerance towards poor bodily hygiene. The term *'not feeling delicious'* (*cảm thấy không ngon*) was often used to describe a strong sensory consequence of improper contact with dirt. In a focus group discussion in the highland village, a man said: *"I have to wash and clean hands and feet to eat anything more deliciously. Because, if it is too dirty, you can't eat deliciously"* another man added: *"Wash clothes... dirty clothes with sweat; I can't bear that! So I have to shower and wash clothes – otherwise I can't stand it!"* (FGD, men, highland). Hence, efforts were made by all adults to delineate dirt from the body by showering after work to strengthen well-being.

Also, while adults often appeared unclean during work, observations showed a strong social norm in all EMG's and across poverty levels to present oneself and one's children hygienic and neatly, by showering and dressing up, when visiting health clinics, authorities, or nearby towns and markets.

Overall, these rationales for keeping domestic and personal hygiene formed strong social and embodied motivations for keeping hygiene and were not directly related to biomedical risks. This was also true for perceptions of handwashing with soap. Most of the interviewed people could mention some risks related to not washing hands, e.g. the danger of eating with dirty fingers. They referred to handwashing information campaigns including posters, flyers, slogans and political decrees implemented in the communes in recent years as a response to outbreaks of SARS and Bird flu. But this risk knowledge obviously did not turn into practice, and none of the EMG's perceived regular hand washing with soap to be necessary unless hands were visibly dirty.

Air borne pollution

Miasmatic beliefs about the cleansing and polluting capacity of air further demonstrated how notions of hygiene are embodied in practice. In both highland and lowland families, clean air was perceived as crucial for maintaining hygiene and keeping body and mind in healthy shape. A woman explained: *"Everything has to be kept neatly in order. A neat house makes a human airy (thoáng người)"* (FGD woman, lowland). Men also stressed this; *"It [hygiene] is about the environment: To make people comfortable. If it is clean and airy, our bodies will be satisfied (đáp ứng)." (FGD, men, lowland).* In contrast, malodorous air was considered 'dirty' and dangerous, causing defilement and health problems when entering the body. A man explained: *"When the environment has been polluted, and we inhale (hít vào), we will get diseases [...] When we throw garbage, or throw the bodies of dead animals around, it is polluting [...] It is in the air. [...] It is smelly!"* (Man, 33 years, lowland). Again, the effect of being exposed to disgusting substances was described as feeling 'not delicious'. *"The smell gets inside, and makes us all feel not delicious (cảm thấy không ngon) any more. Then our bodies will not be clean anymore"* (Woman, 45 years, lowland). Smell was, in particular, associated with developing respiratory difficulties, when entering the airways: *"Buffaloes' excrements, cows' excrements; People inhale and exhale and it will affect peoples' development"* (FGD, men, lowland). To avoid dirty air entering the porous body, people were observed ventilating their houses frequently during cooking and at dinner time to keep them clear from foul air and to cover their mouths during handling of animal waste when transplanting rice in newly manured fields and whenever passing through dusty air. Some elders perceived the smell from soap to cause the same symptoms of unease and disgust and therefore avoided fragrant soaps by using herbal water infusions or ash. Younger people, however, liked scented soaps and shampoos.

Smelly latrines – concentrated dirt

Miasmatic notions were expressed most strongly about human faecal matter, which was perceived to emit the most dangerous smell. This made open composting latrines very unpopular among both highland and lowland people. Observations and interviews revealed that highland families rarely used any type of latrine and lowland families reluctantly used their own pit latrines. This was particularly clear in the Xá Phó village (lowland), where authorities had provided pit latrines for all households. All four pit latrines belonging to case households were overgrown and unused, despite being fully functional and having ash or lime available to prevent smell from developing. According to community members, they did

not use their pit latrines located in close proximity to the houses since disgusting smell from the latrine could enter the domestic area. The village health worker confirmed this perception and that no one in the village liked to use pit latrines. He therefore integrated this miasmatic concern into his own sanitation advocacy: “We have to ask them which direction the wind normally blows. Otherwise if the pits are there and the pens are here – when the wind blows to the house, it will affect people” (53 years, male Xá Phó sanitation advocator).

A group of highland people also stressed disgust towards encountering bad smells in confined defecation sites: “Going in there (to the latrine) is smelly, which they (people from the village) don’t like. It is too smelly!” (FGD, men, highland). Instead, highland people preferred spacious and smell free defecation sites in the forests. Observations also showed that vaults in composting latrines built by the authorities in the highland had been un-sealed to allow pigs and dogs to consume the excreta. In this way, foul smelling faeces would not accumulate in the village if someone used the latrine, the owners said. In the lowland, observations and interviews revealed that smell was still dealt with using overhung fishpond latrines, despite being officially banned. A man explained: “I had to make it (the latrine) with no smell for not polluting the environment and to be clean. Because when we defecate in the water there is no smell. If we go to a dry place to defecate it will be very smelly!” (Man, 40 years, lowland). Also, this type of latrine was a valuable choice of sanitation since it was cheap, easy to construct and supported breeding of fishes from the human waste. The risk of faecal and parasitic contamination was not perceived as a threat to them. Defecating in streams and irrigation channels was also expressed as common practice in both lowland and highland villages, since smell and faeces would vanish with the flowing water.

Hence, by breaching latrine vaults, keeping latrines open for animals and fish and by using water for containing smell, dirt was dispersed throughout the open space instead of accumulating near the domestic area. As a result, the borders between the domestic area and the outside were controlled.

Faecal odour was also viewed as harmful to one’s self-representation and perceived as able to ‘stick’ to someone when defecating. As a result, people went far away from home to avoid ‘taking the smell with them back home’. A young man from the highland explained how to avoid such humiliation and social defilement: “We have to go far away to not let it involve other people who pass across the roads; don’t let them smell that smell [...] Then I feel embarrassed! (Laughing) [...] It’s just like making yourself dirty” (Man, 19 years, highland).

Finally, need for privacy made a difference for usage of latrines in highland and lowland communities. In the highland, the forest was clearly preferred to the latrine for privacy. A man explained: “Here, the forest is wide (rộng) and you can go anywhere. People can’t see you. It’s not like down there (in the valley): They are living close and there are so many people. People can see you” (Man, 48 years, highland). The increased population density in the lowland made household latrines more acceptable for lowland families, since this provided them with a private defecation site and reduced pollution of the near living environment. A young woman stated: “I think it’s better to have a latrine, because it’s better to go to one place. It’s cleaner: when you move around in the village, you don’t see shit and you don’t step on it” (Woman, 29 years, lowland). But many adults from the lowland still expressed concerns of social disgrace associated with defecating in a latrine located near the house; “Each household only has a very small garden, we see each other all the time... We even see each other in the morning when someone goes to defecate... It is very unhygienic!” (FGD, men, lowland). Therefore, despite accepting latrines for reasons of environmental sanitation, lowland people used them mainly during night time when unseen.

In conclusion, sanitation and hygiene practices and perceptions are influenced by similar social and cultural values across all EMGs. In particular, preventing dirt to transgress borders between the ‘outside’ and the ‘inside’ being the domestic domain or the body was paramount to people. Such improper transgressions presented health risks and social embarrassment, with ‘dirty smell’ of particular importance to the local understanding of hygiene.

Hygiene ‘from the outside’; influence from politics

In addition to the embodiment of social norms and cultural hygiene perceptions, the data revealed a clear impact of the political hygiene agenda and the socio-economic living conditions on hygiene motivation of the ethnic minorities. Poor living conditions, particularly in the highland village, reinforced the EMGs self-perceptions of being marginalized and the practice of government subsidization, especially with regards to sanitation hardware, triggered community expectations and created dependency among the EMGs that improvement and interventions in hygiene and sanitation should be provided by the government.

Hardship as a barrier for improved hygiene

Observations in the villages showed clear differences in hygiene and sanitation standards and behaviour according to different socio-economic situations and peoples’ working schedules. Being poor and predominantly working away from home created difficult conditions in which to keep a hygienic household, invest in latrines and have access to safe water and soap. All informants expressed a desire to live in cleaner surroundings and described their poor rural life as dirty and hygiene standards as low compared with richer communities. Some highland women explained: “Up here (in the highland), people can’t keep houses clean and beautiful... We can’t do that! Most houses up here are dirtier than houses down there (in the valley)”. Another woman added: “Here the life is difficult. People can’t be as clean as people down there”. A third woman mentioned poverty as the main barrier for keeping hygiene: “We are just too poor. We can’t construct houses so they can be kept clean. It is very dirty, we know that” (FGD, women, highland). Highlanders frequently depicted themselves as poor and disadvantaged and compared themselves with ‘valley-people’, whereas the lowland minority groups compared themselves with non-minority people living ‘outside’ a rural society. A lowland woman envisaged: “Outside (the rural commune) it is cleaner; everyday there is somebody to clean things up” and compared it with the daily hardship for rural ethnic minorities: “Here, we wake up early in the morning, clean the house a bit, and then go to work in the fields, go home in the evening and sleep around 8 or 9. So how could there be someone who could sweep?” (Woman, 24 years, lowland). A group of men from the lowland added to this explanation: “People focus on earning money, and working more. They don’t really notice hygiene around here, to say it frankly. Because it is a hard strive to make a living...” (FGD, men, lowland). The hardship and dirtiness of rural life were thus perceived as main barriers to hygiene by all ethnic groups. Notions of dirt were clearly associated with notions of rural life and the marginal geographical position of ethnic people as opposed to a richer, more hygienic, and non-ethnic minority ‘outside society’, also referred to as a ‘civilized world’ (văn minh thế giới). Thus, the constrained geographical and socio-economical position, were the reasons given for not attaining proper hygiene.

Dependency on authorities

Despite having included hygiene education and training into national hygiene policies, there is still strong focus on improving

hardware aspects of hygiene. This is emphasised by the present governmental water and sanitation programme called '3 hygienic constructions' (*ba công trình vệ sinh*), which focuses at increasing coverage of bathrooms, latrines and water supply in rural areas. These figures are reported monthly to authorities in order to fulfil national hygiene and development standards. Funding to and monitoring of these facilities is high on the political agenda, and during fieldwork we repeatedly witnessed community advocates and authorities campaign for subsidies. Villagers' perceptions of hygiene seemed to reflect this focus on hardware. During a discussion, a man explained: "Actually, a latrine is the most important thing to have [for hygiene] but here in the rural area we don't have the financial conditions to build it" (FGD men, lowland). In all families in the lowland villages, we constantly overheard concerns that rural life simply couldn't allow for proper sanitation. A village head elaborated: "People's knowledge is not too low, but their conditions are too poor so they cannot afford to build tanks or toilets - even though they want to" (Village head, lowland).

The subsidy of 0.5 million Dong (App. 28 USD) was perceived as insufficient by all low income families. They said they had to save money and collect building materials for years to complete the construction of a latrine. Only a few lowland families were doing that and full sanitation coverage was therefore far from being achieved.

Latrines made with local material, which could provide people with cheap defecation facilities were also not of interest in the highland community. Some men explained why: "We can make it by bamboo but it breaks down quickly. So, if we make one, we will build it with cement. But now we don't have money so we don't want to do that. We just go messily (*đi bừa bãi*) like that" (FGD, men, highland). The perception of being too poor to invest in sanitation resulted in high expectations on authorities to provide latrines among all groups. A group of lowland women called out: "Party and government; contact them and make them support us! To help these poor and rural areas to have clean water, a bathroom and a latrine for each house... The smallest thing is a latrine!" (FGD, women, lowland). A man from the highland village agreed: "The government people build it for the people [...] If the government supports me, then I would thank them. Now I go to the forest. I am too lazy. I don't make one" (Man, 48 years, highland). This dependency created great frustration among sanitation advocates. A village health worker in the lowland expressed his call for action: "I think it's maybe not because they don't want to build it (the latrine) [...] It's because of their dependency; they will wait for the government to pay [...] I have tried to mobilize people many times but they don't want to do it!" (Village health worker, lowland). In other words, these EMGs associate hygiene and especially sanitation with 'outside' political actors taking the actions and providing the means for hygiene and sanitation improvements.

Discussion

Embodied hygiene and influences from the outside

This study shows that hygiene practices are formed by notions of the social body, where perceptions of proper social behaviour and cultural concepts of illness transmission are inscribed. The miasmatic notions of 'dirty' air causing disgust, imbalances and respiratory diseases are particularly important across all EMGs studied. These hygiene perceptions resonates with perceptions described in other parts of Vietnam among the majority Kinh (Craig, 2002; Knudsen et al., 2008) and are thus not a distinct characteristic of ethnic minority hygiene culture. Overall, these perceptions of hygiene influence practices of maintaining order by avoiding dirt, especially dirt related to human faeces and smell. This

is consistent with studies in different cultures and settings by Douglas (2002) and Campkin and Cox (2007), that hygiene is motivated by avoiding improper transgression of physical, social and bodily borders. For sanitation practices, bad smell from human waste is furthermore perceived as social defiling. In studies of motivations for sanitation behaviour, Curtis (2001) and Geest (2007) found people similarly concerned with 'social contamination' when seen defecating.

In addition, this study highlights that low socio-economic status and the particular difficult living conditions in the highland communities influence the ways in which EMGs perceive and respond to government hygiene interventions. The poor socio-economic conditions clearly function as constraining factors for the fulfilment of self and external expectations of good hygiene practices. But a sense of marginality is also expressed, especially among the highland EMGs, who continuously underline the differences between a richer and cleaner 'outside' majority society in opposition to their own 'poor and dirty ethnic communities'. Hence, as Brody also found among rural Thai people immigrating to do work as cleaners in urban areas (Brody, 2007), notions of dirt and hygiene play important roles in underlining such differences between a rural poor space compared to a more 'developed' urban scene.

These perceptions might be rooted in national policies in which EMGs, especially those inhabiting highlands, are repeatedly categorized as 'developmentally disadvantaged' (Taylor, 2008; The World Bank, 2009). Taylor highlights that EMGs have therefore long been subjects of disciplining power from the nation-state, being pressed to 'assimilate' and conform to mainstream developmental standards or marginalized. In addition, EMGs are commonly stereotyped as 'marginal', 'remote cultural others', intellectually and culturally underdeveloped and 'backwards' by the public (Taylor, 2008; The World Bank, 2009). The World Bank survey found that EMGs tend to internalize such stereotyping when describing themselves as inferior to the majority society. We found that ethnic minority community members perceived themselves as 'hygienically underdeveloped' and verbalised hygiene as coming from a 'developed outside' society, when frequently being targeted by a body politics with 'outside' political actors providing both the means and directives for hygiene and sanitation improvements. This results in expectations and dependency on initiatives and actions by authorities, leaving little initiative in the local communities.

This study therefore highlights that current hygiene and sanitation policies may fail since they do not match communities' difficult living conditions, and address local hygiene perceptions and dependencies. This needs to be addressed in order to enhance hygiene and sanitation uptake and improve health for vulnerable communities in Vietnam.

Ensuring appropriate sanitation solutions

In order to design effective sanitation programs, policy makers and program managers need to understand the underlying cultural and social factors that determine sanitation behaviour and priorities. This study confirms that supplying national standard latrines does not necessarily result in uptake and correct usage (WSP-SA, 2005, pp.1–136) if latrines do not fit local priorities.

We found important differences in preferences to use and abilities to invest in sanitation between low- and highland populations. Even with a subsidy, the cheapest standardized model of an enclosed composting latrine is unaffordable to the majority of people in the communities, but particularly for highlanders. Furthermore, this type of latrine conflicts with local perceptions of dangerous accumulating smell, especially in the highland setting where open defecation is common practice. Communities are therefore reluctant to accept this widely promoted sanitation solution.

The conceptual sanitation framework SaniFOAM created for analyzing and designing appropriate sanitation programs, acknowledges that opportunities, abilities and motivations for sanitation vary widely in target populations and should be reflected in programming (Devine, 2009). Sanitation planners in Vietnam could benefit by adopting such step-wise process when upgrading sanitation adapted to different socio-economic contexts and behaviour patterns following a 'sanitation ladder' (Willets, Wicken, & Robinson, 2009, pp.1–36). According to our findings, concrete ventilated latrine models are viable solutions in richer lowland communities while eliminating open defecation should be a main focus in highland settings. This might be achieved by promoting dedicated defecation sites near working places and by introducing low-cost latrines with an 'airy' superstructure to overcome feelings of disgust towards dirty air.

Also it should be realized by sanitation programmers that the overhung fishpond latrine is still popular in lowland settings, despite being officially banned. Allowing for a gradual replacement of these latrines is necessary, since other latrines are not affordable. Also, a cheap type of pour flush latrines could be introduced as an alternative to composting latrine, since this fits perceptions and traditional practices of using water to contain smells of faeces.

Finally, it's recommendable to move away from a purely supply and subsidy driven approach to sanitation. Demand-driven sanitation approaches have already proven a viable alternative in parts of rural Vietnam, (WSP-EAP, 2005, pp.1–16) and a large range of alternative financing options for sanitation have been developed to avoid subsidy dependency and increase investments (Evans, Van der Voorden, & Peal, 2009, pp.1–40). However, a recent survey in the study area showed that the private hardware market is presently too weak to support an effective demand-driven sanitation process (CEFACOM & SNV, 2009). Hence, strengthening the private hardware market and offering micro-credits for sanitation in poor ethnic minority populations should be a part of future sanitation approaches in rural Vietnam.

Strengthening hygiene promotion 'from the inside'

A number of studies have proven the effectiveness of community-based health programs around the world, including improved water and sanitation practices (Khandekar et al., 2006; Metwally, Saad, Ibrahim, Emam, & El-Etreby, 2007). Recently, a community-based approach was tested for rural Vietnamese community leaders to improve 'healthy environments' (Hien, Takano, Seino, Ohnishi, & Nakamura, 2008). Participant-centred and problem-based learning styles were found appealing to Vietnamese community leaders as a future health promotion approach, but hardly any participatory hygiene interventions are piloted among ethnic minorities in Vietnam. We suggest that health planners in Vietnam could benefit from introducing such strategy, particularly in vulnerable communities, as a tool to counteract expectations and dependencies on outside actors. Preliminary findings from a PHAST (Participatory Hygiene and Sanitation Transformation) based hygiene and sanitation intervention indicated high motivation among the ethnic groups to improve sanitation, but also showed low levels of participation among women in patriarchal highland tribes (French Red Cross, 2009). A promising approach to address problems of unequal participation is the Community Health Clubs (CHC), where members of voluntary clubs build a 'culture of health' to obtain changes in health attitudes and behaviours. CHCs have successfully created demands for improved hygiene and sanitation in several African settings (Waterkeyn & Cairncross, 2005). In the present study, informants from highland as well as lowland all expressed genuine interest to improve and discuss hygiene and sanitation issues. Community mobilisation through CHCs could initiate actions 'from the inside' and counteract the culture of external dependency.

Handwashing with soap is known as a very effective preventive measure for a number of hygiene related diseases (Cairncross, 2003; Curtis & Cairncross, 2003) and therefore presents a huge potential to improve community health. But as highlighted in this and other studies in Vietnam (NCERWASS, 2007), key hygiene behaviours such as hand washing with soap and safe management of human waste receive very low attention by people. This is despite the information campaigning rolled out in the communes in recent years. Taking into account that there is already a very strong focus on sanitation hardware promotion in the communes, there now seems to be a great need for assigning more resources and efforts to design and implement effective 'software' interventions, changing hygiene behaviours in addition to providing information. In the Vietnamese rural context this could rely on active participation of Village Health Workers as focal points, who are already in place in almost every village in Vietnam. They host important in-sights into local health, hygiene and sanitation perceptions and are trusted members in the communities. In order for future hygiene policies in Vietnam to better match community priorities, we strongly recommend scaling up participatory software interventions to particularly include poor communities, and involve local ethnic minority health stakeholders.

Acknowledgement

Appreciation goes to our research field assistant, Le Thi Anh Thu, and to everyone in the villages for participating in this research, and for always welcoming us into their homes. This study was supported by the Danish International Development Assistance (Danida) through the project "Water supply, sanitation, hygiene promotion and health in Vietnam (SANIVAT) – a research capacity building project (104.DAN.8.L.711). We also thank staff at the SANIVAT project in Hanoi and Center for Preventive Medicine, Lao Cai for logistical and administrative support.

References

- Brody, A. (2007). Dirt and development: alternative modernities in Thailand. In B. Campkin, & R. Cox (Eds.), *Dirt: New geographies of cleanliness and contamination* (pp. 156–167). London: I.B.Tauris & Co. Ltd.
- Cairncross, S. (2003). Handwashing with soap – a new way to prevent ARIs? *Tropical Medicine & International Health*, 8(8), 677–679.
- Campkin, B., & Cox, R. (2007). *Dirt; new geographies of cleanliness and contamination*. London: I.B. Tauris & Co. Ltd.
- CEFACOM, & SNV. (2009). *Experience sharing: CLTS pre-pilot in Lao Cai and Lai Chau provinces*. Workshop on improved sanitation and hygiene IEC-BCC tools in Viet Nam, 5th August, Hai Phong, Viet Nam. The Centre for Research on Family Health and Community (CEFACOM)/Netherlands Development Organisation (SNV).
- Craig, D. (2002). *Familial medicine, everyday health knowledge and practice in today's Vietnam*. Honolulu: University of Hawaii Press.
- Curtis, V. (2001). Hygiene: how myths, monsters, and mothers-in-law can promote behaviour change. *Journal of Infection*, 43(1), 75–79.
- Curtis, V., & Cairncross, S. (2003). Effect of washing hands with soap on diarrhoea risk in the community: a systematic review. *Lancet Infectious Diseases*, 3(5), 275–281.
- Curtis, V. A., Danquah, L. O., & Aunger, R. V. (2009). Planned, motivated and habitual hygiene behaviour: an eleven country review. *Health Education Research*, 24(4), 655–673.
- Dearden, K. A., Quan, I. N., Do, M., Marsh, D. R., Schroeder, D. G., Pachon, H., et al. (2002). What influences health behavior? Learning from caregivers of young children in Viet Nam. *Food and Nutrition Bulletin*, 23(4 Suppl), 119–129.
- Department of Health Lao Cai district. (2008). *Household statistics from study communes*. Lao Cai, Vietnam: Department of Health, Lao Cai District.
- Department of Preventive Medicine and Environment. (2009). *Statistical year book – Infectious diseases 2008*. Ha Noi, Viet Nam: Ministry of Health.
- Devine, J. (2009). *Introducing SaniFOAM: A framework to analyze sanitation behaviors to design effective sanitation programs*. Water and Sanitation Program.
- Douglas, M. (2002). *Purity and danger: An analysis of the concept of pollution and taboo*. New York: Routledge Classics.
- Evans, B., Van der Voorden, C., & Peal, A. (2009). *Public funding for sanitation. The many faces of sanitation subsidies*. Geneva, Switzerland: Water, Supply & Sanitation Collaborative Council.

- French Red Cross. (2009). *PHAST approach for ethnic minority groups; an integrated behaviour change communication tool based on community participation*. Workshop on Improved Sanitation and Hygiene IEC-BCC Tools in Viet Nam, 5th August, Hai Phong, Viet Nam.
- Geest, S. van der (2007). Not knowing about defecation. In R. Littlewood (Ed.), *On knowing and not knowing in the anthropology of medicine* (pp. 75–87). Walnut Creek, California: Left Coast Press, Inc.
- General Statistical Office. (2003). *Vietnam demographic and health survey 2002*. Hanoi, Vietnam: General Statistical Office.
- General Statistics Office. (2006). *Household living standard survey 2004*. Hanoi, Vietnam: General Statistics Office.
- Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24(2), 105–112.
- Hien, L. T. T., Takano, T., Seino, K., Ohnishi, M., & Nakamura, K. (2008). Effectiveness of a capacity-building program for community leaders in a healthy living environment: a randomized community-based intervention in rural Vietnam. *Health Promotion International*, 23(4), 354–364.
- Ho Chi Minh (1961). The 5 lessons taught by uncle Ho. Letter Published at the Twenty Year Anniversary of the Young Pioneers of Vietnam Hanoi, Vietnam.
- Jenkins, M. W., & Curtis, V. (2005). Achieving the 'good life': why some people want latrines in rural Benin. *Social Science & Medicine*, 61(11), 2446–2459.
- Khandekar, R., Ton, T. K., & Do, T. P. (2006). Impact of face washing and environmental improvement on reduction of active trachoma in Vietnam – a public health intervention study. *Ophthalmic Epidemiology*, 13(1), 43–52.
- Knudsen, L. G., Phuc, P. D., Hiep, N. T., Samuelsen, H., Jensen, P. K., Dalsgaard, A., et al. (2008). The fear of awful smell: risk perceptions among farmers in Vietnam using wastewater and human excreta in agriculture. *Southeast Asian Journal Tropical Medicine and Public Health*, 39(2), 341–352.
- London, J. D. (2008). Reasserting the state in Viet Nam. Health care and the logics of market–Leninism. *Policy and Society*, 27(2), 115–128.
- Mays, N., & Pope, C. (2000). Qualitative research in health care – assessing quality in qualitative research. *British Medical Journal*, 320(7226), 50–52.
- Metwally, A. M., Saad, A., Ibrahim, N. A., Emam, H. M., & El-Etreby, L. A. (2007). Monitoring progress of the role of integration of environmental health education with water and sanitation services in changing community behaviours. *International Journal of Environmental Health Research*, 17(1), 61–74.
- Ministry of Health. (2005). *Decision 08/2005/QĐ-BYT by Minister of Health regarding issuing sector standards: Hygiene standards for various types of latrines*. Hanoi, Vietnam: Government of Vietnam.
- NCERWASS. (2007). *Survey on water, environmental sanitation and hygiene among Hmong and Gia Ria ethnic groups*. Hanoi, Vietnam: National Centre of Rural Water Supply and Sanitation (NCERWASS), Ministry of Agriculture and Rural Development, UNICEF.
- Panter-Brick, C., Clarke, S. E., Lomas, H., Pinder, M., & Lindsay, S. W. (2006). Culturally compelling strategies for behaviour change: a social ecology model and case study in malaria prevention. *Social Science & Medicine*, 62(11), 2810–2825.
- Rheinländer, T., Olsen, M., Bakang, J. A., Takyi, H., Konradsen, F., & Samuelsen, H. (2008). Keeping up appearances: perceptions of street food safety in urban Kumasi, Ghana. *Journal of Urban Health*, 85(6), 952–964.
- Scheper-Hughes, N., & Lock, M. (1987). The mindful body: a prolegomenon to future work in medical anthropology. *Medical Anthropology Quarterly*, 1(1), 6–41.
- Schmidt, W. P., Aunger, R., Coombes, Y., Maina, P. M., Matiko, C. N., Biran, A., et al. (2009). Determinants of handwashing practices in Kenya: the role of media exposure, poverty and infrastructure. *Tropical Medicine & International Health*, 14(12), 1534–1541.
- Scott, B., Curtis, V., Rabie, T., & Garbrah-Aidoo, N. (2007). Health in our hands, but not in our heads: understanding hygiene motivation in Ghana. *Health Policy & Planning*, 22(4), 225–233.
- Shaikh, B. T., Haran, D., & Hatcher, J. (2008). Where do they go, whom do they consult, and why? Health-seeking behaviors in the northern areas of Pakistan. *Qualitative Health Research*, 18(6), 747–755.
- Taylor, P. (2008). Minorities at large: new approaches to minority ethnicity in Vietnam. *Journal of Vietnamese Studies*, 3(3), 3–43.
- Teerawichitchainan, B., & Phillips, J. F. (2008). Ethnic differentials in parental health seeking for childhood illness in Vietnam. *Social Science & Medicine*, 66(5), 1118–1130.
- The World Bank. (2009). *Country social analysis. Ethnicity and development in Vietnam*. Washington, DC: The World Bank.
- Waterkeyn, J., & Cairncross, S. (2005). Creating demand for sanitation and hygiene through Community Health Clubs: a cost-effective intervention in two districts in Zimbabwe. *Social Science & Medicine*, 61(9), 1958–1970.
- Willets, J., Wicken, J., & Robinson, A. (2009). *Meeting the sanitation and water challenge in South-east Asia and the Pacific. Synthesis report on the sanitation and water conference*. International Water Centre.
- WSP-EAP. (2005). *Private sector sanitation delivery in Vietnam – Harnessing market power for rural sanitation – Vietnam*. Hanoi, Vietnam: The Water and Sanitation Program East Asia and the Pacific.
- WSP-SA. (2005). *Scaling up rural sanitation in South Asia - lessons learned from Bangladesh, India, and Pakistan*. New Delhi, India: Water and Sanitation Program South Asia.