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Everyday health security practices as disaster resilience in rural Bangladesh

Nibedita S. Ray-Bennett, Andrew E. Collins, Ross Edgeworth, Abbas Bhuiya, Papreen Nahar and Fariba Alamgir

ABSTRACT

Health security is a relatively new concept in terms of how it is practised in disaster-prone locales. We observed 10 rural households in Bangladesh for four months using informal interviews, field diaries, and observation. The findings suggest that the everyday practises of health security involve the capabilities of “caring for themselves” in resource-constrained contexts. Understanding how households care for themselves prior to and during disasters presents an opportunity to examine how improved health might reduce the effects of disasters, ill health, and poverty. Some interventions are proposed to improve health security for poorer households in general and women in particular.

La sécurité sanitaire est un concept relativement nouveau pour ce qui est de la manière dont elle est pratiquée dans les lieux sujets aux catastrophes. Nous avons observé 10 ménages ruraux au Bangladesh durant quatre mois en utilisant des entretiens informels, des journaux de terrain et l'observation. Les constatations suggèrent que les pratiques quotidiennes en matière de sécurité sanitaire font appel aux capacités à « s'occuper de soi » dans les contextes dotés de ressources limitées. En comprenant comment les ménages s'occupent d'eux-mêmes avant et durant les catastrophes, on se donne l'occasion d'examiner comment une santé améliorée pourrait réduire les effets des catastrophes, des problèmes de santé et de la pauvreté. Certaines interventions sont proposées pour améliorer la sécurité sanitaire pour les ménages pauvres en général, et les femmes en particulier.


El concepto de seguridad en salud es relativamente nuevo en términos de cómo se ejerce en lugares proclives a los desastres. Los autores del presente artículo investigaron diez hogares rurales de Bangladesh durante cuatro meses, realizando entrevistas informales, manteniendo un diario de campo y efectuando observaciones. Los hallazgos encontrados al respecto sugieren que las prácticas desarrolladas cotidianamente para lograr la seguridad en salud implican tener la habilidad de “cuidarse a sí mismos” en contextos de limitados recursos. Comprender cómo las familias cuidan de sí mismas antes de y durante un desastre brinda la oportunidad de mejorar la seguridad en salud de los hogares con menos recursos y, en particular, de las mujeres.

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Introduction

The rise in prominence of health security was led by reports by United Nations Development Programme (UNDP) (1994) and the Commission on Human Security (CHC) (2003). However, there still remains little consensus on the definition and understanding of health security (Aldis 2008; Ray-Bennett et al. 2010). The United Nations (UN) and the World Health Organisation (WHO) have divergent views and practices. The former suggests health security is a developmental and human rights tool, while the latter used health security interchangeably with global public health security (WHO 2007; Aldis 2008). While these may resonate with globally orientated international organisations, typically these views reflect little of how people perceive health security at a local level, due to a dearth of empirical research on this subject (Ray-Bennett et al. 2010). We posit that any theoretical and practical advancement in understanding health security should be informed by empirically lived realities. These are currently not documented with regard to a focus on health security. Given this gap, the aim of this article is two-fold: first, to explore how rich and poor households practise health security in a vulnerability context; and second, to show how health security practices are challenged during disasters. We observed 10 rural households from two hazard-prone locales in the districts of Matlab and Chakaria in Bangladesh.

It is important to understand health security in a “vulnerability context” in Bangladesh and beyond, because rural livelihoods in particular operate against shocks, trends, and seasonality (Department for Foreign and International Development (DFID) 1999).¹ Vulnerability reflects a lack of buffers against contingencies such as disasters, poverty, ill health, and so on (Chambers 1989). Vulnerability can be traced back to quite remote roots and general causes that entail socio-economic processes and political factors, which are required to understand why hazards affect people in different ways and why people experience disasters differently (Wisner et al. 2004; Ray-Bennett 2009).

Due to physical and geographical characteristics, Bangladesh is highly disaster-prone. To reduce the impact of natural hazards, national and international organisations have recently adopted the UN’s Sendai Framework for Disaster Risk Reduction – successor to the Hyogo Framework (UN 2015). One hundred and sixty-eight UN member states (including Bangladesh) adopted the Framework to minimise disaster risks. This begs the question as to whether these initiatives are sufficient to reduce disasters’ impact on community health and promote disaster resilience. We posit that a health security approach can play an important role in contributing knowledge and thereby enhancing the effectiveness of disaster risk reduction in Bangladesh and beyond. In doing so, health security can contribute to the understanding of Target 3 of the Sendai Framework (which has a health component), “Investing in disaster risk reduction for resilience”, by documenting indigenous knowledge and identifying areas where people’s capacities can be supported and enhanced.

This article is structured as follows. The next section describes what health security is and how this research contributes to this emerging discourse. Subsequent sections describe the research methodology and present the research findings. The final section provides some suggestions for policy and practice.

What is health security?

The genesis of health security can be traced back to the concept of human security proposed by the UN in 1994, which added a new dimension to the narrowly defined dominant concept of “security”. Security was defined as a threat to countries’ borders, protection of national interests in foreign policy, and global security from the threat of nuclear holocaust. The UN’s framework provided an alternative perspective to security. It argued that security can be threatened by interconnected and reinforcing aspects of economic, food, health, environmental (our emphasis), personal, community, and political insecurities. In 2003, the CHC re-emphasised the meaning of security from the state to the security of people and to human security. The report acknowledged health security or good health (used interchangeably) as “essential and instrumental to achieving human security” (CHC

2003, 96). The report also emphasised human security as complementary to state security, but with a focus on human development and human rights (CHC 2003; Ray-Bennett et al. 2010).

However, the human security approach is largely gender and class neutral (Hudson 2005; Roberts 2008). Security and insecurity concerns for women are often much more serious than for their male counterparts (Vaux and Lund 2003; Roberts 2008). This is partly due to societal structures (patriarchy and gender relations) and national and international financial institutions (through neo-liberal policies with an effect on reduced health and social security) which perpetuate gender violence and feminisation of poverty (Roberts 2008). Salient examples of this are maternal mortality, infanticide, and under-five mortality rates in developing countries, which are all preventable (Roberts 2008). In this context, this research helps to plug gaps in a locally centred analysis of health security by focusing on individuals and households with different socio-economic status and gender. The findings also address women's agentive capabilities in securing health in a vulnerability context. In doing so, it brings us to the capability element of health security.

The capability approach related to health security came into prominence with the publication of the CHC report (2003). Capability is a broad concept which incorporates concerns associated with the standard of living, but goes beyond it (Dreze and Sen 1989; Sen 1999). Living standards relate specifically to the richness of the person's life, whereas a person may also value his or her capability to be socially useful and influential. Second, a capability is "nutrition-related", but nutrition-related capabilities are defined with reference to the relevance or otherwise of improved food intake, education, health care, sanitation, and safe drinking water. Third, capability also represents the various combinations of functioning (being and doing) that the person can achieve and thereby lead one type of life or another. Fourth, capability is also the ability to avoid morbidity, to be informed and educated, and to be well nourished. Fifth, capability is the ability to debate, negotiate, and to add voice to political process and, therefore, to be an agent of "social change" (Dreze and Sen 1989; Sen 1999). The ability to achieve these five variants of capability in everyday life is a challenge for poor rural households. During disasters they become even more critical.

The caveat of the capability approach is that it fails to explain how health is socially, politically, economically, and culturally lived and constructed by people in different societies (Ray-Bennett et al. 2010). We have tried to explain this through the "people's perspective". The people's perspective overlaps between traditional and medical science (Stacey 1994; Blaxter 2004). The main distinction between the people's and professional perspective is that the former is most often informal, experiential, and unwritten, but not necessarily simple. In the people's perspective, people – the public, patients, and potential patients – are considered as health producers as well as consumers of health care (Stacey 1994; Ray-Bennett et al. 2010).

In the least developed countries, health production related to "standard of living and beyond" (as discussed earlier) is primarily the responsibility of householders. Due to lack of social security schemes households are left largely to their own devices to "care for themselves". All the household members (as observed in this research), including children, partake in health production. Caring for themselves is an integral part of health security. It is a vital component that keeps health and livelihoods ongoing.

Caring for themselves has a close resonance with the concept of "self-care" (unorganised health activities) (Kickbusch 1989; Edgeworth and Collins, 2006; Edgeworth 2011). But the term self-care is misleading in the context of this research because of its emphasis on the "self". Health production is a collective affair. In the resource-constrained South Asian context, the self exists in relation to others – "collective selves" (Sen 1999). In this light, caring for themselves has an edge over self-care.

We understand "caring for themselves" as "*unorganised health activities and health related decision making by different individuals of a household with regard to livelihood income, medication, treatment, nutrition intake, safe drinking water and social support in illness and disasters*".² Caring for themselves is the first aid in a natural setting which is the everyday context of people's everyday lives. Caring for themselves is then the primary health resources in the health care system. We posit that this

approach provides a vantage point from which to understand how health security is practised in a vulnerability context. The capability approach is closely connected to health security, but at a micro-level (household as a unit of analysis) the perspective on “caring for themselves” enables us to understand the enactment of health security. It also allows us to understand the caring practices that might require external intervention to promote health security and thus in turn promote household resilience to poverty, ill health, and disasters.

Methodology³

Observing households formed part of a larger health security project in Bangladesh (Health Security Project 2007–2009). We adopted a predominantly participant-as-observer model in which two female research assistants were hired in Matlab and Chakaria to observe 10 households (five in each location) for four months from May to September 2008. As a participant-as-observer the female research assistants participated in the household chores. They also observed the household members “by developing relationships” with them in which their relationship was “brief and formal”, such as an observer-as-participant (Burgess 1991). This enabled the research assistants to document the health activities conducted by the female members in their private spaces of the kitchen and living rooms.

Of the 10 households, six were poor and four were rich (see Table 1). This included five male and female-headed households. Households were defined as rich based on the ownership of livelihood assets (such as farmland, homestead, poultry, cattle) and an absence of family members selling labour, whereas a household was defined as poor when it lacked livelihood assets and where at least one member did sell labour. Three female-headed homes were widow-households (de jure) and the other two were de facto in that the husband was the head but was temporarily away for economic reasons (Health Security Project 2007–2009).

Consent from all the households was received before starting the observation process. The households were chosen with the help of local gatekeepers and the partner organisation, International Centre for Diarrhoeal Disease Research in Bangladesh (ICDDR,B). Matlab and Chakaria are Muslim-dominated locales. Female research assistants who had previously worked in these locales were recruited.

The observation process

To explore how rich and poor households practise health security in a vulnerability context, and how health security practices are challenged during disasters, we developed health security indicators based on our previous research which explored “how health security is interpreted by rich and poor households in a vulnerability context” (see Ray-Bennett et al. 2010). The health security indicators were: hygiene and sanitation practices; ownership of household assets; livelihood assets; and access to health care, emergency shelter, and safe drinking water (see Table 2).

We also had several research questions to understand these observation processes: what do households do to maintain health security? How many members are there in a household? What are their occupations? Who is the head of a household? Who undertakes what in relation to health security activities? How are these health activities changed during disasters? What are the challenges that households face with regard to health security activities during disasters? Were there any specific health problems due to the disaster? What did households do and where did they go to seek help in order to overcome challenges related to health security?

Table 1. Type of households in Matlab and Chakaria.

Villages	Male-headed household (MHH)		Female-headed household (FHH)	
	Rich	Poor	Rich	Poor
Chakaria	1	1	1 (de jure)	2 (de jure)
Matlab	1	2	1 (de facto)	1 (de facto)

Table 2. Health security indicators for this project.

Livelihood income	Labour, poultry, cattle, land, pond, remittance, governmental and private jobs, microcredit
Owens household assets (that are extremely essential during flood or cyclone)	Cot, table, chair, concrete or mud (<i>kucha</i>) house, tube well, toilet, mobile phone, mobile earthen oven, electricity, dingy boat
Access to health care	General hospital, primary health care centre, chemist shop
Access to emergency shelter	Flood-cum-cyclone shelter, public buildings such as schools, colleges and universities, neighbour's concrete house
Hygiene and sanitation practises	Access to toilet, washing hands after defecation, washing dishes in clean water, washing hands after cleaning children's defecation, general cleanliness, defecation habits
Access to safe water	Access to arsenic-free drinking water, access to clean surface water during floods, access to water purifying tablets, access to arsenic-free water for bathing and washing

These questions were flexible and were tailored by the research assistants based on the context of each household. The research assistants maintained a field diary for each household. They updated the diaries on a daily basis, summarising meetings with the household members and outlined any changes in the observation process. Updating the diaries on a daily basis was given high importance so that the research assistants were able to document as much information as possible while it was still fresh in their memories. This is particularly important for the development of analytical ideas (Hughes 1994). The diaries were written in Bengali and were regularly read and monitored by the lead author. Since the sample size was small we analysed the diaries relying on the traditional method of reading and re-reading them time and again to make sense during the writing up process (Hammersley and Atkinson 1995). This analysis was guided by the questions posed above (Yin 2012). We also used the margins to write comments related to questions and complementary sources used to increase their validity.

The patterns of observation

The observation was designed to include whole week observation, whole day observation, and weekend observation. Whole week observation meant spending five whole working days of a given week in each household in order to develop a rapport with and get to know the household members fully. This continued for five weeks with five households (weeks one to five). Whole day observation meant spending one whole day of a given week in each household and continuing this for five weeks (weeks six to ten). Weekend observation meant spending two whole days of the weekend in each household. A contingency week for mid-term evaluation was also included in order to revisit some of the questions that needed further attention or re-design the observation process if required. The purpose of this pattern of observation was to build a picture of the whole week, hence different techniques and times of observation were used. Additionally, it was determined that observing the whole week at different times over four months enhanced the validity and accuracy of our methodology. A caveat of this observation process is that the respondents were not observed at night time. This was considered culturally inappropriate as well as unsafe by the female research assistants. Another caveat of the research is that medical conditions were recorded based on reporting rather than observed diagnosis.

We used observation, diary keeping, and informal interviews to achieve reliability and validity of data, but the question remains whether or not the research can stand a test of replication (Burgess 1991). Exact replication would be hard to achieve due to the uniqueness of this research and also the subjective nature of social life. However, similar methods can be employed elsewhere to document the everyday practices of health security. The questions for observation, patterns of observation, diary keeping, and observation were developed to adapt in the two research locations in Bangladesh, highlighting the reliability and validity of these methods and research.

Study sites

Chakaria and Matlab are highly disaster-prone locales. Chakaria is located in the Cox's Bazaar district which is situated in the southeast of Bangladesh and on the coast of the Bay of Bengal. Tropical monsoons and heavy rainfall typically characterise the climate of Chakaria from May to September, with the remaining months experiencing mainly dry weather. Generally, living conditions are poor; families live in houses made from natural materials such as mud, leaves, bamboo, and straw, containing one or two rooms and a kitchen area.

Matlab Upazila is located in Chandpur district which is 55 kilometres southeast of Dhaka, the capital of Bangladesh. Matlab is highly prone to floods and cyclones because it sits at the heart of the Ganges-Meghna deltaic floodplain. During the monsoon season private boats become the primary mode of commuting. More recently, Matlab has seen increased migration, particularly to the Middle East. Remittances from the Middle East form an important source of income for many householders there (Edgeworth 2011).

Practising health security in a vulnerability context

To understand how rich and poor households practise health security in a vulnerability context (research question no. 1) we developed a health security profile as a baseline for our research (see Tables 3 and 4). According to this profile, four rich households owned private tube wells for the provision of water, concrete toilets, and a bathroom. The primary occupation of these households was farming. However, two households also had shops selling groceries and homeopathic medicines. These households purchased day-labour on day-to-day basis to assist in farming as well as domestic work. The farm work was largely done by the male labourers who assisted in harvesting the paddy, de-husking paddy, purchasing food items, and transporting rice/paddy to the local market for sale. The domestic work was done by a female labourer who assisted the mothers by cooking, washing dishes and clothes, and sweeping and mopping rooms and the homestead every day in order to maintain a clean environment. These activities were considered fundamental to health security by these households because they ensure their livelihood as well as their good health. Regular intake of healthy and nutritious food was also considered a part of caring for themselves in order to maintain good health. Consuming poultry, meat, milk, fish, and vegetables with rice was considered a healthy diet. Rich households were able to purchase these healthy foods three to four days a week. The profiles of the rich respondents suggest that they were able to meet the first four capabilities related to standard of living and nutrition. However, this was not the case for the poor households.

Of the six poor households, four owned tube wells and a traditional toilet. Only two households without these assets used their neighbours' tube well, shared a ring-slab toilet, and defecated in the fields. Strictly speaking, only one member in each household earned income. The earning members were involved in pulling rickshaws (two), cooking assistant in a hotel (one), assisting in a hospital (one), and day labouring (two). The health security profile revealed that caring for themselves is a complex interplay of gender, poverty, and human agency for the poor households. We illustrate this in three interconnected ways: standard of living and nutrition intake, exchanging livelihood assets to generate nutrition-related income, and hygiene and sanitation practices for good health.

Standard of living and nutrition intake

In the poor households it was observed that all family members, including the young girls and boys, played an important role in maintaining health. Mothers cooked and borrowed money occasionally from their neighbours in order to purchase food. Mothers also collected firewood, looked after the cows by cleaning cow sheds early in the mornings, and made cow dung cakes

Table 3. Health security profile of the five households in Chakaria.

Household type	Age	No. of dependants	Education	Livelihood income	Household assets	General health	Owns toilet	Access to safe water
Rich MHH (Zilal-Udin Rahman)	45	4	Class X	Farming Community leader Wife runs a homeopathic shop	Farmland Mud house with high plinth, walls are of bamboo and mud with a corrugated tin roof Table and chairs Mobile phone Tube well Television Toilet Kitchen garden Fruit bearing trees	Zilal's wife suffers from chronic headache. On two occasions she was found taking bed rest.	Yes	Yes
Rich FHH (<i>de jure</i>) (Dilshad Begum)	58	None	Literate	Farming Receives monthly donation from her two sons who work in Cox Bazar.	Concrete house Concrete toilet and bathroom Tube well Table and chairs Mobile phone Farmland Pond Fruit-bearing trees	Suffers from high blood pressure and is on regular medication. We were able to observe her for one month. The other three months she spent visiting her two sons in order to receive good medical care.	Yes	Yes
Poor MHH (Ali Hussain)	45	4	Can sign	Rickshaw puller	Tube well Rickshaw Mud house with a thatched roof Wooden bed	There were five days Ali took the mornings off work due to severe back pain. He did not see a doctor. His daughter and his wife massaged his back instead. Ali's wife suffered from cough, fever and headache after the flood.	No	Yes
Poor FHH (<i>de jure</i>) (Nazma Begum)	44	2	Illiterate	Son (16) works as an assistant in a private hospital (monthly income TK1400 (approx. £12)). The daughter (20) knits caps for the local Imams and earns some petty cash occasionally. Rears cattle and earn some money by selling milk.	Two cows Mud house with thatched roof that leaks Wooden bed Chair Mobile earthen oven Tube well	Daughter suffered from fever during the flood. Grandson (7) who lives with Nazma had diarrhoea during the flood.	Yes	Yes
Poor FHH (Diksha Begum)	55	2	Illiterate	Son (26) is a rickshaw puller. Rears poultry	Mud house with a corrugated tin roof One cow Tube well Day labour Eight chickens	Diksha's daughter-in-law was pregnant with her second child. She reported loss of appetite after the floods. Dilwara's first granddaughter (2) suffered from fever after the floods and was taken to the local hospital.	Yes	Yes

Table 4. Health security profile of the five households In Matlab.

Household type	Age	No. of dependants	Education	Livelihood income	Household assets	General health	Owns toilet	Access to safe water
Rich MHH (Helal-Ud-Din)	44	2	Unknown	Grocery shop Farm land Rears cattle	Concrete house with a corrugated tin roof. Tables and chairs Tube well Two palm trees Pond Mobile phone Television One cow Seven chickens (three died due to an unknown disease after the floods)	Hellal is hunchback and suffers from chronic back ache. Wife and daughter massage his back regularly. Hellal's daughter (15, student) is married. She reported ill-health because she was pregnant.	Yes	Yes
Rich FHH (Rita Begum)	Unknown	5	Unknown	Husband works in Chittagong as a contractor. Farmland Rears cattle	Corrugated tin house One cow Toilet and bathroom Tube well Mobile phone	Two children contracted chicken pox after the floods. They were taken to the local doctor once in Matlab.	Yes	Yes
Poor FHH (Jyotsna Begum)		5	Unknown	Husband works in Dhaka as a day labourer and sends some money monthly. Weaves mat for petty cash.	Two-room mud house with a thatched roof Chicken coup inside the bedroom eight chickens Owns a guava tree and several coconut trees	The baby (8–9 months) suffered from high temperature in July.	Shares a ring slab toilet with the neighbours	No Uses neighbour's tube well for drinking water. Uses neighbour's pond water to cook food, wash vegetables, rice, and dirty dishes.
Poor MHH (Golok Mia)	52	4	Illiterate	Day labourer in a hotel. Rears poultry	Mud house with a corrugated tin roof Toilet One cow three chickens and one duck (kitchen and cow shed went under water during floods – found crying)	Children suffered from flu.	Yes	No Uses neighbour's tube well to collect drinking water. Uses neighbour's pond water to cook food, wash vegetables, rice, and dirty dishes.
Poor MHH (Shahjahan Ali)	60	4	Class X	Day labourer in a local potato and chilli warehouse. Rears poultry	Corrugated tin house Wooden bed Chair 14 chickens one duck died after floods		No (kuccha toilet)	No Uses neighbour's pond water for cooking, cleaning, drinking, and washing.

for fuel and petty cash. Young girls swept the homestead twice, cleaned dishes largely in the local ponds, cut vegetables, knitted for petty cash, and assisted their mothers in cooking. Young boys fetched groceries from the local markets and shops, paid electricity bills, grazed the cows, and caught fish from the flooded rice fields and rivulets. All of these were considered integral to securing health. These roles changed only when a family member was sick or away from home.

These families largely ate seasonal wild vegetables which were gathered from fields or borrowed from others, largely by the mothers and young girls. Poultry never formed part of their diet because they could not afford to buy it, although most of them reared poultry. The only family expenditure other than for rice was to purchase cheap local or dried fish. Rice, oil, and other basic cooking ingredients were bought on a daily basis. It was observed that households averaging four members never cooked an amount of rice that exceeded one or two kilogrammes. This was eaten for both breakfast and lunch. Going hungry or not achieving a full stomach was a perennial issue among the household members. This was succinctly put by a mother in Matlab: “If I eat *bhor pet* (full stomach) my children will be unable to eat in the afternoon.”

Larger portions of rice and fish were always offered to the husbands and then to the young boys over and above the young girls. Eating rice with only salt, left-over gravy, and raw chilli was common among the poor mothers observed, and this is consistent with other research findings in Bangladesh (Ray-Bennett et al. 2010; Nahar et al. 2012). Unsurprisingly, the prevalence of severe anaemia, micro-nutrient deficiencies, and malnutrition among mothers, adolescent girls, and young children are serious public health concerns in Bangladesh (GoB 2003).

Exchanging livelihood assets to generate nutrition-related income

Microcredit is the fastest growing industry in the world, with a particular focus on women as the clientele (Ray-Bennett 2009; Sen 1999), and we were able to see a snippet of this populist industry in our two research locations. In both locations there were more than two or three microfinance organisations and they played a crucial role in lending money to six households. Women borrowed the loans on behalf of their husbands to buy rickshaws (two cases), agriculture (one), cows (two), and toilet (one). One respondent reported using the loan for household consumption. In this way, microcredit played an important role in overcoming financial constraints (see Table 5).

Table 5. Households that took microcredit in Chakaria and Matlab.

Village	Household type	Borrowed loan	Purpose
Chakaria	Rich MHH (Zilal-Udin Rahman)	Yes	Agriculture
	Rich FHH (Dilshad Begum)	No	
	Poor MHH (Ali Hussain)	Yes	Rickshaw
	Poor FHH (Nazma Begum)	Yes	Cow
	Poor FHH (Diksha Begum)	Yes	Rickshaw
	Matlab	Rich MHH (Helal-Ud-Din)	No
Rich FHH (Rita Begum)		No	
Poor FHH (Jyotsna Begum)		No	
Poor MHH (Golok Mia)		Yes	Tube well and cow
Poor MHH (Shahjahan Ali)		Yes	Used for household consumption

At the same time, the premium for these credits often exceeded the monthly income of the poor households.⁴ As a result, these households were often late in paying their instalments. The families also paid back less than the agreed repayment fixed at the time of the loan. Any repayment was arranged by borrowing (except the rich household in Chakaria) some money from their neighbours or relatives. The process of arranging this money was not pleasant for the women. They were found to be anxious, restless, and embarrassed to visit their neighbours' or relatives' houses again. This is because the microfinance organisations often used coercive techniques to prevent default. In Matlab, one female respondent reported that the coercion techniques include:

"First, the household members are warned and cautioned for missing the instalment; second, pressure is exerted by the group members on the defaulter; third, NGO workers come and surround a household in order to put further pressure, and fourth, if still the household has failed to pay, livelihood assets such as utensils, cycles and tin fences are seized. Verbal assaults and insults are extremely common in this technique."

All household assets act as collateral for microcredit. One direct side-effect of this source of income was an increased level of physical and mental anxiety. We also observed women exerting their agency by pressuring their husbands or sons to earn more money because the credit was secured via them. The research assistant in Chakaria found these situations extremely stressful to observe. In one occasion she noted:

"Nassir is bullied by his mother and wife if he comes home without money.⁵ He is also denied food sometimes. The bullying is so severe at times, that I feel, they will kill him."

Once, this research assistant lent TK 50 (£0.41) to Nassir's mother so that she could pay the instalment and have some peace of mind. This action was taken because Nassir's mother was found in severe stress when she failed to secure even TK 50 from her neighbours and relatives.

Arguments and skirmishes were common between spouses over not earning enough. Mothers also took extreme measures to make repayments, foregoing purchasing the ingredients of their daily meals in order to avoid coercion from the microfinance employees. In this light, microcredit put the health and well-being of the poor households at stake. Bangladesh is a patriarchal society and fares poorly in the Gender Development Index. Unsurprisingly, none of the female members were involved in any gainful employment outside of their homesteads (except knitting or selling cow dung cakes for petty cash), which displays the specific internal vulnerabilities (Chambers 1989; Ray-Bennett 2009) that poor households undergo on a day-to-day basis. In this context, microcredit did little to become a tool for empowerment for these women.

Hygiene and sanitation for good health

Health security is closely linked to hygiene and sanitation. Irrespective of social class, women and young girls washed their dishes in the ponds in Matlab and Chakaria. The same pond water was also used by all the four households in Matlab for bathing, cooking, washing clothes, and cleaning children after defecation. Drinking water was largely collected from the tube wells, except during flood times when the surface and rain water was collected. None of the poor households reported using soap after defecation. Using mud or charcoal ashes instead was a common practice. Loose bowels were recurrent among the children in the two de facto female-headed households in Matlab, for which no medicine was purchased. A grandparent of the children brought fruits and some sweets when the children felt ill. These female-headed households also exhibited gross malpractices in sanitation and hygiene. They often left children's faeces unattended in the courtyard or in the sitting areas. They also threw the faeces into the public pond. This pond water was also used for cleaning, cooking, and washing by these households as well as by the neighbours. On several occasions, the research assistant advised the mothers to clean up the faeces because the smell and flies often made observation difficult to continue.

There is enough evidence to suggest that a mother's education and their children's well-being are interconnected (Sen 1999; Few and Tram 2010). It was observed how uneducated women's agency and their actions put not only the health security of their children at stake but also that of the community at large. Waterborne diseases in Bangladesh pre- and post-disasters are prolific (Nahar et al. 2012) and our observation provides insight as to how these diseases could be largely anthropogenic in nature, with health insecurity leaving communities more exposed to the effects of environmental hazards. This was, in effect, an expression of reduced resilience in these areas.

Challenges of health security in a disaster context

Matlab and Chakaria were both flooded in July 2008 as they are both low lying. The two local research assistants were unable to observe the households during the floods because their houses and localities were also affected. Therefore, we explored our second question, "how health security practises were challenged during disasters", by conducting informal interviews and observation after the floods in August and September.

Our findings suggest that all the households in both locations made some preparations prior to the monsoon season. Preparedness was largely evident among the mothers by their saving some rice, dry food, and firewood. The male members or young boys helped to store provisions in lofts and hung firewood in bunches from the roof so that it did not get wet. All the households in Matlab and Chakaria had mobile earthen ovens so that food could be cooked anywhere, even if the kitchen or the homes were flooded.

Neither of these two locations had emergency shelters. In the absence of this, the rich male-headed household in Chakaria shifted to a concrete primary school with his family and the rich female-headed household went to her son's house in Cox Bazar (nearest town). Crops and their furniture were badly affected in the floods. Of the three poor households in Chakaria, two set up a makeshift tent on the side of the main road and another took shelter in a concrete veranda of her neighbour's house. Houses, toilets, and tube wells were all submerged. Local dingi boats were used to travel outside the village for defecation and also to collect clean surface water for drinking. Three households also reported receiving water packets from the local government. The two rickshaw pullers continued their work during floods because the main roads were not flooded. However, they also reported wasting their time by sitting and doing not much due to the continuous rainfall which stopped them going out for work. During floods households ate only once a day and rest of the time they ate dry food such as *mudi* (puffed rice), *chuda* (pressed rice), and *panta bhat* (gruel rice). This was also the case for the rich household.

After the floods, each household had at least one family member who became sick in Chakaria. Colds, cough, fever, diarrhoea, and headaches were the common health problems. After the floods scorching heat, humid weather, wet houses, and muddy courtyards and village streets were some of the reasons cited by respondents for the increase in health problems. None of the households in Chakaria (except one) reported visiting a doctor or purchasing medicine from the local pharmacy for these illnesses. The most common form of care was resting and having plenty of sleep. We also observed that after the floods women from the poor households spent more time outside their homes gossiping or talking with other women and neighbours. This was to avoid staying in wet homestead and damp floors. Girls and women also expressed increased restlessness and anxiety in this wet environment.

In Matlab, although all five households were affected, none of them reported moving out of their houses. The poor households took refuge in their lofts and on their neighbour's verandas. Household assets such as cot, table, and chair did not help a lot due to their submergence in flood water. These households used surface and rain water for drinking and cooking. Surface water was collected far from the homestead with the hope of getting cleaner and less muddy water. Traditional boats were the only mode of transport during floods. The mothers used their mobile earthen ovens to

cook rice once a day. Dry food and *panta bhat* were commonly consumed during the flood in Matlab as well.

An increased level of anxiety and unhappiness were also noticed in Matlab after the floods. For the wife of one poor male-headed household it was all too much. She was found crying because of the broken walls of her kitchen and cowshed due to their submergence in flood water. Later the father of this woman joined her in crying.

It was reported to the research assistant that the three chickens contracted an unknown disease in the rich male-headed household in Matlab. The immediate action that the woman of this household took was to slaughter the chickens, wash them in hot water, and cook into a curry. The curry was then stored in a neighbour's fridge. Diarrhoea and chicken pox was noted among the children of the two female-household households in Matlab after the floods. For diarrhoea the children were not taken to the doctors, rather the grandfather brought some sweets. The children who contracted chicken pox were taken to the local doctor once.

In light of the above, it can be argued that the first three capabilities related to nutrition, standard of living, and the ability to avoid ill health were severely challenged not just of the poor households (as observed in their everyday lives) but also of the rich households during the floods.

Conclusion

Through the lens of "caring for themselves", health security merits two types of interventions: short and long term. In the short term, we suggest immediate food and nutrition intervention by the government and also raising awareness on the regular intake of pulses and protein. Some initiatives have been undertaken by non-governmental organisations and ICDDR, B, such as text messaging on how to prepare homemade saline. People are empowered to make their own saline at low or no cost in the household to treat diarrhoea, thus further reducing opportunity costs (especially for women) and avoiding the time and costs of seeking medical support (Edgeworth 2011). Projects like this require scaling-up in those areas which lack such support.

We also suggest that the government provide food rations to poor households at a subsidised rate through the Public Distribution System. Such a system has helped India's poor in highly disaster-prone locales. Food aid during floods could be another important intervention so that poor households are not forced to sell labour in desperation, putting their health at risk. Mobile health, water, water purifying tablets, first aid, and oral rehydration solutions could also form part of non-food aid during and after floods.

In the long term, we suggest intervention through community surveillance and organisation of the poor to create institutional linkages with the state and non-state actors (Adams and Chowdhury 2003) by developing community groups. Training and awareness programmes on community health, health literacy, disaster-related health issues, and child and family health could also be included as part of the longer-term interventions. These programmes should particularly target mothers for good health, hygiene and sanitation practices, first aid, and knowledge on nutrition in resource-poor contexts. As part of disaster education, primary and secondary schools can also promote health and hygiene in disasters since young family members play a crucial role in attaining health security at household levels. Minimising the impact of disaster risk cannot happen without disaster-resilient housing and emergency shelters in those locales which are prone to flooding and cyclones.

Promoting regular employment through food for work could form part of both short- and long-term interventions for poor households and women in particular. Income-generating schemes that are sensitive to women's social and cultural norms require exploring in resource-poor contexts. More research is also required to explore the ways microcredit can facilitate health security, women's well-being, and agency (Ahmed, Chowdhury, and Bhuiya 2001). Lastly, diversification of the rural economy in disaster-prone locales needs to receive special budgetary priority through research and development. This can be instigated by governmental and non-governmental

organisations in Bangladesh with the overall goal of human development and human security, ultimately helping to exemplify what it really means to build disaster resilience.

Notes

1. The sustainable livelihood framework defines “vulnerability context” as “the external environment in which people exist and is responsible for many of the hardships faced by the world’s poorest people” (DFID 1999).
2. The definition of “caring for themselves” is adopted from the definition of WHO’s “self-care” (Kickbusch 1989).
3. We would like to thank the journal reviewers for providing constructive comments on the methodology section.
4. We were unable to find the exact amount of loan borrowed by each household. There were three reasons for this. First, households wanted to maintain their privacy from the research assistants by not sharing the amount that they have borrowed. Second, the lead author made an attempt to contact two microfinance organisations in Matlab and Chakaria in order to seek some information on this. They refused to meet her. Third, due to the level of literacy of some of the poor households they were confused about the amount that they had borrowed coupled with the rate of interest. There were further confusions because some of them paid less than their fixed instalment.
5. All the names used in this research are pseudonyms.

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