Promoting health literacy: a case study in the prevention of diarrhoeal disease from Bangladesh

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SUMMARY
The relationship between health education and health literacy is examined through a case study of a project to prevent diarrhoea in rural Bangladesh by CARE-Bangladesh in 1993. Health professionals in Bangladesh typically define health education as a one-way approach of information dissemination. Achieving health literacy implies that health education not only relays information, but also enhances a person's ability to think about healthy behaviours, seek and use information, and motivates people to take action to improve health. This paper illustrates how a traditional health education program failed to bring expected changes in the community to improve health. It then describes the development and implementation of the SAFE (Sanitation and Family Education) project by CARE-Bangladesh. SAFE is a diarrhoea prevention program which illustrates the concept of health literacy as a step to improved health outcomes. Emphasis is given on the dynamic process of communication, community needs and participation, identification of problems related to socio-economic and environmental factors, and role of the field workers. It argues that health promotion interventions must respond to the local context and needs to be continuously reviewed and revised as necessary. Lessons learned and achievements of SAFE are highlighted. The paper suggests that readers review whether their existing programs are doing enough to raise health literacy and improve health outcomes, or if they are merely increasing awareness of related issues.

Key words: Bangladesh; diarrhoea; health education; health literacy

INTRODUCTION: HEALTH EDUCATION AND HEALTH LITERACY IN BANGLADESH
In Bangladesh ‘health education’ is a widely used term in preventive medicine directed to promote healthy lifestyles. Health professionals typically define health education as a one-way approach to information dissemination. Generally, they do not take into consideration the actual use of information to improve health by the individual receiving the information.

Over the last few years, health professionals in Bangladesh have begun to analyse the relationships between health, knowledge and environmental support to achieve a more sophisticated understanding of how to change lifestyles. This analysis fits more comfortably with the concept of ‘health literacy’ as an outcome of health education, going further than the simple dissemination of messages and enhancement of people's ability to think about healthy behaviours, to seek and use information, and motivates people to take action to improve health. Such distinctions help to clarify differences between educational programs designed to achieve the different levels of health literacy described by Nutbeam (Nutbeam, 2000). These levels distinguish between compliance with expert-prescribed behaviour (functional health literacy), self-management of problems in partnership with health professionals (interactive health literacy), and empowerment (critical health literacy).
TRADITIONAL HEALTH EDUCATION: ADVANTAGES AND LIMITATIONS

In general, health education in Bangladesh has relied upon the techniques of formal education under which most professionals have been trained. This model of education is basically a one-way, teacher-dominated delivery system. In some cases the approach used by the education worker to work with communities is not based on the principles of community development, i.e. respect, dialogue and negotiation with community members (Aubel et al., 1998). In this model, information is passed from the expert to the learner. Relatively few staff members are needed for this kind of approach and it is generally less costly in terms of time and money. The assumption in Bangladesh has been that people being told what they should do by health educators will then proceed to follow those instructions, resulting in improved health for the individual. This traditional method represents a generalized approach to promoting health which was designed for mass audience coverage. In other words, it is an approach which uses the same educational material for all audiences despite any cultural differences, or differences in norms, or beliefs that may exist within Bangladesh. As is often the case, educational materials are pre-packaged and the information describing healthy behaviours is standardized. One of the main problems with this model is that achievement is often reduced to meeting quantitative targets related to exposure to the message, or ability to recall facts. These targets indicate coverage (e.g. number of school children informed) but do not indicate the resulting behavioural changes, if any, that occurred (Jahan et al., 1995; Jahan et al., 1996). The fact that many recipients of health education in Bangladesh can recite the information they have received is often cited by health professionals as proof of program success, and there is an assumption that by having the information, individuals will then take steps to improve their health.

HEALTH LITERACY: ADVANTAGES AND LIMITATIONS

The operational or functional meaning of health literacy refers to the capacity of individuals to gain access to health information and use that information to improve health. Health literacy is an outcome to health education, and can be used as a reference point to dictate process and methods of communication used.

A health education program called SAFE (Sanitation and Family Education), developed and implemented by CARE-Bangladesh, is described in the following section. This model is used to reflect upon the concept of health literacy. The model is based on recognition that each situation is different and requires methods that are appropriate to a particular community. The practical and sequential components of the model include the following (Bateman et al., 1993).

- Community needs assessment through qualitative and quantitative studies. This task identifies the opportunities and constraints to behaviour change through health education.
- Discussion on establishing the link between behaviour change and personal benefits such as health benefits or financial savings.
- Acquisition of knowledge and skills through participation.
- Development of locally appropriate solutions through joint partnerships with the community taking into consideration the local values, beliefs and practices.
- Continuous adaptation of changes by the community.
- Work on a series of small steps to behaviour change which are manageable, achievable and result in recognizable health benefits.

Using this approach, facilitators, or field workers, serve as partners of community change rather than as teachers who impose pre-determined solutions. This method yields the best results when it employs participation of those affected. The participatory technique is consistent with the elements underlying the concept of ‘critical health literacy’. The essence of development is to empower people to take charge of their own health and to foster a spirit of self-reliance.

Limitations of this approach include the need for well-trained facilitators with flexibility and accountability to the community people. It requires staff commitment to community participation, practical experience on both quantitative and qualitative research techniques, and the unique capability to continuously revise education strategies. In addition, it is a time-consuming approach that involves working with a community at a pace that is suitable to their ability in order to ensure the development of health literacy and subsequent sustainable healthy behaviour changes.
CASE STUDY IN HEALTH LITERACY—DIARRHOEA PREVENTION IN BANGLADESH

Problem
Bangladesh is a small country of ~148 000 km² with a population of ~120 million people. In Bangladesh, the leading causes of child death are related to diarrhoea, malnutrition, vaccine-preventable diseases and respiratory infections (Bangladesh Bureau of Statistics, 1996). Most women, particularly in rural areas, are largely confined to their homes and neighbourhoods. Like other developing countries in Asia, most women are illiterate, uninformed about nutrition or basic health and hygiene, and are without any independent income. As a result, her children suffer from chronic malnutrition and repeated episodes of preventable diseases such as diarrhoea.

Diarrhoeal diseases are mainly caused by unsafe water, inadequate sanitation and poor hygiene which are common factors in shanty living conditions and densely populated countries such as Bangladesh. Faecal contamination of the environment usually results from the lack of, or non-use of, sanitation systems. Many people in Bangladesh use water polluted by faeces for a variety of purposes, and have improper sanitation practices that create multiple avenues for faecal–oral transmission of disease-causing organisms. Recent studies suggest that, although most Bangladeshis consider faeces a pollutant, few could make the association between faecal contamination and the transmission of organisms that cause diarrhoea (Zeitlyn and Islam, 1991).

Background
A health initiative entitled Water Sanitation and Hygiene project (WASH) was developed by CARE-International, Bangladesh as a relief effort after the devastating 1991 cyclone in Bangladesh. WASH focused on the repair of damaged water sources and the construction and supply of hygienic latrines. It also included a small hygiene education component that focused on drinking safe water, the installation and use of latrines, and hand washing to prevent and control diarrhoeal diseases. The intervention messages were selected from a standardized package of education materials that were not field tested, and the implementation incorporated only one-way communication. In other words, the community was simply given information rather than participating in the identification of problems and development of solutions. Importance was given on the quantity of latrines and tubewells (hand pumps for safe water) that were installed rather than their use. An evaluation of WASH showed minimum changes in behaviour related to health and hygiene (Ahmed, 1992; Brahman et al., 1993). Findings from this evaluation revealed that very few children under the age of 6 years used latrines, hand-washing agents (soap, ash) were not found in very many households, and the rate of maintenance of latrines installed was poor. Community members continued to practice many behaviours which made them susceptible to a range of diarrhoeal diseases related to polluted water and poor sanitation. The evaluation of WASH recommended an intensive community-based health education program in project areas for success in community health improvement.

Program implementation
In 1993–1994 CARE-international, Bangladesh implemented an innovative community health education pilot project titled Sanitation and Family Education (SAFE) in Chittagong, the coastal area of south-east Bangladesh. This program was developed as a result of the evaluation performed by the WASH project (Brahman et al., 1993). Objectives of the SAFE project included the following.

- The development and assessment of models for hygiene education outreach.
- The development of effective hygiene education outreach methods and strategies to promote behaviour change.
- The design and implementation of a behaviour-based monitoring and improvement system for the hygiene education program.

In SAFE, two models of health education outreach were tested. The first model dealt with education sessions only with community men and women. It was developed on the traditional concept of dissemination of information leading to functional health literacy. In this model other community members, e.g. children, community leaders were not included as the participants and use of information received by the community members was not focused on. The second model was quite different from this traditional one. It had a wider approach that included separate education sessions for men, women, children (both in and out of school), and key opinion
leaders in the community, and use of information for improvement of community health was the main focus. Education materials for adult men and women were the same in both models, but in the second model education materials were tailored towards different groups. The information disseminated in the second model was made easily understandable to different participants using poems, drawing pictures, stories and songs. This was more orientated to interactive or critical health literacy.

Both the SAFE models used the following steps to achieve their goals:

1. assessment of community needs;
2. identification of achievable goals;
3. program implementation;
4. establishment and use of behaviour-based monitoring system;
5. adaptation of changes when necessary.

Assessment of community needs
At the beginning of the SAFE program, hygiene problems were identified based on quantitative and qualitative research activities. For example, baseline surveys showed that many families living 20 min or more away from the safe water sources experienced less diarrhoea compared to those that were closer to the sources (Bateman et al., 1993). This surprising result required further examination. Observations in both groups of households revealed that, in general, closer families were more careless about water storage, and often drank water by cupping their hands to retrieve water from the source. Specific intervention messages were developed based on these assessments.

The education workers were trained to be facilitators, rather than teachers, so that they were able to assist communities in assessing their situations and developing solutions. The role of the facilitators was to support the learning and discovery process by the communities themselves. For example, the communities reported that access to water sources was limited by distance and ownership. Focus group discussions indicated that community members did not have the economic means or influence to tackle these constraints directly, and so they simply used pond water which was unsafe to drink. Because the baseline survey results showed that no increased risk of diarrhoea was associated with using pond water for non-drinking purposes, it was feasible to recommend collecting, storing and using the tubewell water for drinking only and to use pond water for other purposes.

The result of identifying needs with the communities themselves was an education program which was responsive to communities’ needs and priorities by accommodating local beliefs, norms and practices as much as possible. This approach was far more successful than one such as WASH which centred around an expert’s perception of the communities’ needs and what they should do.

Identification of achievable goals
Those behaviours most closely linked to diarrhoea transmission and most amenable to change in the short term were focused on first. It was assumed that if these were successfully addressed, then there would be a high likelihood of an observable impact on health which would, in turn, motivate people to seek further improvements in their behaviour.

Through several formal and informal discussions with community members, a number of realistic goals were set (Bateman et al., 1995a). For example, it seemed unrealistic to promote the idea of using tubewell water for all purposes, a standardized and ideal message, but realistic, was to:

- promote drinking only tubewell water;
- limit uses of pond water to decrease risk of diarrhoea;
- promote careful collection and storage of safe water (keeping hands out of the water, using narrow-necked storage containers and keeping containers covered).

Similar, manageable goals were defined for other issues including latrine use, environmental cleanliness, hand washing, food hygiene and diarrhoea management (Laston et al., 1995; Bateman et al., 1995a; Bateman et al., 1995b).

Information dissemination
Several approaches to promote hygiene education were developed and tested jointly with the community (Bateman et al., 1995a). These included:

- courtyard sessions—used in both models.

The following techniques were used exclusively in the second model:

- teashop sessions with general people;
- children’s education sessions (in and out of school);
- sessions with key opinion leaders.
Courtyard sessions
These were participatory and lively education sessions facilitated by field workers with mostly women, although men were also invited to attend. Participatory learning techniques and other interactive training methods were used. Participants themselves shared their experience of building and modifying the design of latrines suitable for the specific village situation. At the end of each session, participants described what they would do differently to improve their hygiene behaviour and community health overall.

Teashop sessions
The community indicated that men played an important role in decision-making in rural Bangladesh. For example, they are responsible for the decisions to purchase and install hardware (latrines and tubewells). They also exercise considerable influence on the shaping of society norms which might affect the freedom of movement of field workers and the opportunities for women to gather in a place and discuss hygiene behaviour.

Everyone agreed that it was vital to include men in the outreach program to ensure their support and co-operation. Although the courtyard sessions were used for men and women, in practice only two or three men ever attended the courtyard sessions. The sessions were being conducted during the day when men were busy working. Those who did come lost interest, assuming that these sessions were really only for women and they, themselves, did not need any health education. At this point, the community members suggested that education sessions should be conducted at public places like teashops and clubs where men gathered when they were not working. This was a highly successful initiative to help male community members see the relationships between expected hygiene practices and good health.

Children's education sessions
Field workers conducted education sessions to encourage children to play interactive games which incorporated the link between good hygiene behaviours and improved health. The program was based on indigenous games, poems, stories identified from within the community and adapted to serve an educational purpose. They were tested and modified accordingly. The children recited rhymes and played games with educational messages, and they took pride in their ownership/involvement in developing program strategies.

Sessions with key opinion/community leaders
For wider dissemination of information, key opinion leaders were identified by community members through focus group discussions and community mapping, the most common participatory rural appraisal (PRA of Robert Chambers) method. Community members identified key opinion leaders as those people in the community to whom they turned to for advice and guidance but were not necessarily official leaders. This group included a teashop owner, a schoolteacher, a hawker (saleswoman), a woman in the community who set bones when individuals injured themselves, and a volunteer social worker. These key opinion leaders were not expected to be outreach workers but rather people to turn to for sound information and meaningful advice.

Behaviour-based monitoring system
One of the important and innovative components of the education model was the development and use of a behaviour-based monitoring system. This monitoring system included observation technique and identified what people actually did rather than what they reported they did. For example, regular observations of households and individuals, at pond, water pump or defecation sites, were carried out to examine actual hygiene practices. These observations were carried out by trusted individuals in the community and conducted in a discreet manner (Bateman et al., 1995a).

Continuous adaptation of implementation strategies
The approaches to hygiene education evolved slowly as communities themselves made suggestions and provided feedback. They participated in monitoring data collection, analysing findings and developed feasible solutions. During project implementation the following qualitative techniques were used to refine interventions as and when necessary (Zeitlyn et al., 1994; Laston et al., 1995; Jahan et al., 1996).

Focus group discussions
Focus group discussions with men and women in the community provided important input on
interventions for further refinement. Community members offered practical suggestions such as designing a fixed defecation site in the yard for young children who were scared of the darkness of the latrines. Women indicated that the air drying of hands after washing was not accepted in the community. They suggested a clean rag should be kept readily available in the household for hand drying (Zeitlyn et al., 1994). The members of households with latrines provided suggestions for further improvement of latrine design which were incorporated into the interventions and demonstrations.

Group discussions with children
Group discussions with children provided effective feedback on the pictorial stories and games used in the education sessions. Those that conducted the discussions recommended appropriate revisions of educational methods and training materials such as children lead the games instead of the field workers, they recommended exclusion of risky games which involved running (hadudu) and inclusion of local indigenous games, to change colours of pictures of characters of the stories as suited.

Key informant interviews
Unstructured interviews with the key opinion leaders provided input in refining messages and strategies. For example, the schoolteacher suggested that children could participate in health promotional activities during school and help maintain the school latrines. The social worker suggested that the practice of making traditional instant food with unsafe water should be addressed and changed.

Observations
As described earlier, direct observations were made to determine actual hygiene practices during the intervention period to monitor effects of the project and determine changes or revisions that might be necessary for improvement of the program. Observations at safe and unsafe water sources indicated that community members still engaged in risky behaviours. The community recognized that the education sessions needed to be monitored frequently to ensure that the hygiene education emphasized the relationships between behaviour change and improved health.

The use of these qualitative techniques provided rapid feedback to project personnel to allow for prompt revision of project activities. The education program was modified on a continual basis according to the discussions with and suggestions from a wide variety of community members.

Program achievement
In 1994–1995 an evaluation of the SAFE project was conducted in both model areas using quantitative survey and qualitative methods which showed that SAFE had a strong impact on diarrhoea in Bangladesh. For more detailed information regarding research design, sample selection and results on the SAFE program have been published elsewhere (Bateman et al., 1995a; Bateman et al., 1995b).

CONCLUSION
The key lessons learned from the SAFE project are well documented. Based on experience from SAFE, key elements of health promotion programs should include working through different avenues at the community level (Bateman et al., 1995a) which include the following.

- Identification and analysis of problems, and definition of realistic and achievable solutions with specific outcomes.
- Collection and analysis of information on existing beliefs, norms and practices of the community.
- Interactive communication within the community leading to skills development and local ownership of the program.
- Development, testing and refining of participatory extension methods and materials.
- Development, testing and refinement of tailored education messages that target all members of a community including men, women and children.
- Creation of a behaviour-based monitoring system to track the progress and revise strategies.

SAFE is a practical example of a health education program directed towards the achievement of interactive and critical health literacy. SAFE demonstrates the importance of addressing many facets of a problem in order to improve health literacy within a community. It is important that a facilitator, rather than a teacher, work jointly with community members.
in order to address problems successfully and motivate community members to improve their understanding of certain health issues. SAFE shows that improving health literacy does not just involve a health educator telling a community what they can do to improve their health, but involving them in every step of the process so that they have a greater understanding of the problems they face and are empowered to take action to deal with them. Community involvement which results in empowerment of community members to take leadership roles is crucial to a successful program. Goals of the program must be clearly defined and directed towards specific outcomes which will lead to improved health literacy. Lastly, program flexibility and a willingness to change is key to developing a sustainable program that is successful in improving health.

SAFE model is being replicated in many projects within CARE-International, Bangladesh and other CARE missions around the world. To enhance the capacity of health promotion activities of local non-government organizations (NGOs), CARE-International, Bangladesh, initiated a 5-year (1996–2000) training-oriented partnership program with NGOs.

The concept of health literacy to improve health has proven to be successful in the SAFE model area, Bangladesh, and most importantly, men, women and children in these areas are leading healthier lifestyles as a result.

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