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A Multifaceted Approach to Health Education: A Case Study from Rural Egypt

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Case Studies

A MULTIFACETED APPROACH TO HEALTH EDUCATION: A CASE STUDY FROM RURAL EGYPT*

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ABSTRACT

This article describes and evaluates an environmental health education project, focusing on water and sanitation issues, which was carried out in two Egyptian villages in the Nile delta. The study is multifaceted as it involves various hygiene education strategies carried out by health unit staff, teachers, graduate volunteers and local village leaders who deliver simple environmental health messages in a variety of different settings. The project is also multifaceted in that it looks at health education in relation to specific health interventions, in this case in water and sanitation; it identifies the full context of relevant local behavior; and it collaborates with local people, especially women, in the design and implementation of the program. Based on the experience gained during this project, a broad based model for health education is presented.

INTRODUCTION

In recent years, researchers and planners have recognized that health interventions have failed because they have focused on technical intervention and neglected human and cultural factors. How to integrate this insight into health interventions,

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especially in water and sanitation, remains a problem [1]. Health education, as an integral component in any activities promoting community health, also faces this challenge. Effective health education must incorporate a cultural perspective on human behavior. Researchers and planners should seek to understand how and *why* people behave as they do, to learn about their health-related concepts, and to work with local people to identify healthful patterns of behavior.

This participatory, culturally sensitive role for health education should be seen in the context of new views of environmental health interventions. During the United Nations International Drinking Water Supply and Sanitation Decade (1980-1990), researchers and planners recognized that access to potable water did not automatically improve health status, and that sanitation problems should also be addressed [2]. They also recognized that many water and sanitation schemes have failed due to the lack of participation by community members, especially women [3-6]. To achieve a reduction in the transmission of water and excreta related infections, programs need to be carefully designed by integrating water quality improvements, sanitation and hygiene education [7].

This article describes and evaluates an environmental health education project in two villages in the Nile delta carried out between March 1986 and March 1990. The project was one component of an action/research project carried out by an all-Egyptian research team and involving local community members, especially women, in water and sanitation interventions designed to improve environmental conditions and health. For only when local people are involved can meaningful change be initiated and sustained [8].

The study is multifaceted in that it looks at health education in relation to water and sanitation interventions: identifies the context of relevant local behavior in order to suggest effective health messages; and collaborates with local people, especially women, in design and implementation. The study is also multifaceted in that it involves various hygiene intervention strategies, carried out by staff of the health units (outpatients clinics), teachers, graduate volunteers and local village leaders who deliver simple environmental health messages in a variety of different settings.

THE LOCAL AND NATIONAL SETTING

The two study villages are in Menoufia Governorate, approximately 70 km north of Cairo, have populations of 4,000 and 5,000. The inhabitants of both villages have access to three water sources: piped water through house connections or public standpipes, shallow wells with handpumps, and canal water. There are no sewerage, solid waste or sullage disposal systems. Canals are used by women for laundry and washing kitchen utensils [9, 10]. Gastrointestinal and eye diseases, both of which are water related, were reported as the most important illness among children in both villages [7].

The two study villages share health and environmental problems with many villages in Egypt. Although infant and child death rates in Egypt have fallen sharply in the last decade, diarrhea is still the major cause of child deaths [11, 12]. Thus, improvements in water and sanitation can still play a role in improving child health. Although most settlements of the size of the study villages now have access to piped water, few villages have a drainage system to remove sewage or domestic water supplied through the piped systems. Because of high groundwater levels and the absence of a drainage system, many houses are damp, and there is often polluted, standing water in low-lying open spaces in the villages. Irrigation canals often become polluted with waste water and garbage. Throughout Egypt, canals are used for swimming (especially by young boys aged 8-15), and for washing clothes and utensils [9, 10, 13]. Thus, the health education messages developed for this study, and the strategies used, have a relevance far beyond the two study villages.

RESEARCH GOALS AND ORIENTATION

The water and sanitation interventions, and the educational programs were planned and executed "with" local people rather than "for" them. Detailed anthropological research in the two villages had earlier identified health related behavior and its rationale [9]. This provided information about "predisposing," "enabling" and "reinforcing" factors, as identified in the PRECEDE and PROCEED model, which inhibit or facilitate disease transmission, and which can be used in designing health education messages [14].

Specific health education messages focused on water storage, infant feeding, hand washing, food preparation, latrine cleanliness, and the preparation of dung cakes for fuel. Overall, the program emphasized the linkages between behavior, cycles of disease transmission, and environmental sanitation; *how* and *why* diseases are transmitted in relation to the daily practices of household members, especially women. The focus of the study was on achieving simple changes in habits which would result in a cleaner and more healthful environment. It was hoped that these changes would, in turn, lead to changes in mortality and morbidity, but the identification and measurement of such changes was beyond the scope of this project.

The study was designed to compare the effectiveness of various hygiene education strategies. Different groups of hygiene promoters—nurses, teachers, women leaders, and Public Service Candidates (new graduates undertaking a year of community service)—adopted diverse approaches in communicating health-related information using the same basic messages. Each group of health educators delivered messages in different settings, directed at different audiences.

RESEARCH METHODOLOGY

Baseline research began with pre-intervention interviews with groups of potential hygiene educators, with village women and school children to ascertain their perceptions of local health and environmental problems. The action/research component of the project included training, designing and testing materials, and conducting the education.

Ongoing and final evaluations used both quantitative and qualitative survey methods [15, 16]. Every month a 25 percent sample of the women who came into contact with the health promoters were evaluated. The final evaluation was based on a 50 percent sample of the women (N = 312) covered in the earlier anthropological study. This group was evenly divided between a control group of women who were not exposed to the health education messages, and an experimental group exposed to the messages. They also were evenly matched according to housing characteristics. Eighty-nine percent of the women were illiterate, and 90 percent were between twenty and forty years old. An open-ended questionnaire about health behaviors asked women to describe their behavior in certain situations, for example, what they did before preparing food or breast-feeding, how they cleaned the latrine. Observations of their behavior in their own houses were then carried out by women from another village who did not know what health messages had been used in the program.

During the final evaluation, focus group discussions and interviews assessed the knowledge gained by members of the different groups of health promoters, their assessment of personal benefits gained, and problems encountered. Questionnaires were administered to children who had participated in the school clubs, and to their parents.

TARGET AUDIENCE

Women, especially those between twenty and forty years of age, were the most important target for the health education messages as they looked after young children and were most likely to use the canals for domestic tasks. Over 1,000 women in two villages were approached by different hygiene promoters between 1987 and 1990. Over 1,000 primary school children participated in the summer club educational program during 1988-1990. All were in the fifth and sixth grades, between ten and twelve years old.

IDENTIFYING THE HEALTH PROMOTERS

The eighty-five health promoters worked on a voluntary basis, although they were given small monetary incentives. Four groups of health promoters—nurses (8), primary school teachers (51), village informal leaders (12), and Public Service Candidates (14)—were identified for training. All the nurses, village leaders, and

Public Service Candidates were women. Women were more culturally acceptable as educators of women, especially for home visits. Two female and two male teachers were trained in each school, to reach a mixed group of primary school children.

The village women trained as health promoters were selected for their leadership qualities; the majority were illiterate. This group of educators, and the Public Service Candidates, reached village women in their own homes. Public Service Candidates also administered preliminary neighborhood censuses in the areas where they worked, and monitored the educational programs. The Public Service Candidates were nominally assigned to the village public health units but, unlike the nurses, were free to visit women in their own houses.

TRAINING

Since prospective hygiene promoters did not constitute a homogeneous group, different training techniques were pursued for each group. All training was done in small groups, of no more than ten people, in the settings in which the health messages were to be delivered. Both training and delivery of health messages were very informal, relying on group discussions and audio-visual aids rather than on lectures. Training was an on-going process, hence the importance of feedback from evaluation. The Public Service Candidates trained in the first year also trained the PSCs who joined the project later. Health staff was also trained as trainers of teachers. Training required the cooperation of staff in many different sectors: in the Ministry of Education for the summer club program, in the Ministry of Health for the clinic-based program and the training of teachers, and in the Social Affairs Department for the Public Service Candidates.

HEALTH MESSAGES

The health messages consisted of a series of short messages relating to women's everyday activities. The program was flexible enough to respond to local conditions in the two villages. For example, in one village, garbage disposal was stressed when the garbage collection system was instituted; and during the summer, the main season for childhood diarrhea, messages about food handling, disease transmission, and environmental hygiene were emphasized.

During training and outreach, the health promoters needed simple and relevant reference and support material. The research team prepared a training guide and a pamphlet for school children entitled "Water and Us." One of the final activities of the project was the preparation of an illustrated health education booklet, "Guide for Trainers: Health and the Environment," designed and evaluated in collaboration with the educators.

RESULTS: HEALTH PROMOTERS

Nurses were the most successful group of health educators, in terms of retaining information given in the training, and the knowledge they imparted to women. Eighty percent of the women receiving information from nurses at the health units reported that they changed behavior, compared to 58 percent of all women receiving health education. Twenty-eight of thirty-one women evaluated reported benefiting from the nurses' education about diarrhea and eye diseases.

Mothers waiting at the health unit to see the doctor or to have their children vaccinated presented opportunities for informal health education. For example, if a woman brought a child with diarrhea, the nurse could begin an informal discussion about the causes of diarrhea, asking them what they knew about the disease, and suggesting simple preventive strategies such as covering food and water, washing vegetables, and hands. Messages were effective because women listened to the nurses with respect, yet felt close enough to talk to them about things which really concerned them.

The teachers at the summer school retained and conveyed health information effectively. A post-training evaluation showed that most teachers reinforced their knowledge about flies as major disease transmitters, and knew ways to prevent the transmission of schistosomiasis. The training also widened their horizons and gave them new ideas about how to work with children to promote community health.

The Public Service Candidates were effective in approaching illiterate village women. Of thirty-one women evaluated, twenty-three said they had adopted most of the measures suggested by the Public Service Candidates on their home visits—such as covering water and food, cleaning the food preparation area, and making a door to separate the cattle shed from the cooking area. Where messages were not acted on, women complained of having no time to clean the house after being out all day, of overcrowding (13 people in two rooms), and using canal water as they had no time to wait for water at the public standpipe. These comments illustrate the hidden cost of behavioral change promoted by health education; while women know that their practices are not healthy, they may have limited freedom to make healthful choices.

Peer educators, imparting messages in household settings, related well to their peers, and the audience had relatively good message retention. However, the practical difficulties of training on an individual basis, and evaluating individual women in the household setting, meant that they were not cost-effective in terms of time.

Health education studies note that health promoters report personal benefits from training and undertaking health education. Indeed, they must change themselves before they can become effective as health educators. The educators in this project said they had gained self confidence; they were more willing to speak out on health issues, and to be involved in community affairs. Four of the Community

Service Candidates continued working informally for changes in the village after their year of service, and the informal leaders attended village community development meetings and became active in organizing a garbage collection system.

RESULTS: BENEFICIARIES

The interviews indicated that the experimental group identified healthful behavior more often than the control group. The greatest difference between the experimental and control groups was in the area of hygienic water storage practices, as shown in Table 1. Comparing the interview results with the observations, showed that, while there was a difference between the experimental and control groups in both knowledge and behavior, knowledge was not always translated into behavior. For example, in village A, 100 percent of the experimental group and 86 percent of the control group said that water containers should be covered, but 48 percent of the experimental households visited had covered stored water, compared to only 19 percent of the control group.

Table 1. Measures of Hygienic Water Storage

	Village A				Village B			
	Experimental		Control		Experimental		Control	
Response	Freq	%	Freq	%	Freq	%	Freq	%
Covering water storage container	42	100	36	86	37	100	36	97
Clean place	27	64	16	38	12	32	9	24
Wash container regularly	12	29	14	33	17	46	12	32
Clean hands before drawing water	13	31	—	—	5	15	5	13
Regularly change water	9	21	6	14	4	11	2	5
Clean cup for drawing water	14	33	1	2	4	11	1	3
Protect water from flies	6	14	1	2	5	13	0	0
Never return leftover water after drinking	1	2	0	0	0	0	0	0
Sample	42		42		37		37	

Interviewers $n = 158$
Respondents gave multiple answers

Hand washing with soap was emphasized in relation to all household chores. Both observations and interview schedules point to differences in results between control and experimental groups in hand washing before infant feeding. In village A, 26 percent of the experimental group and 7 percent of the control group said that this should be done, as shown in Table 2; while 33 percent of the experimental group, but only 5 percent of the control group, were observed to do so. Mothers in the experimental group were observed to instruct their children to wash their hands after defecation (19% in village A and 27% in village B), while in the control groups, this was not observed at all.

Overall, the evaluation indicates more healthful behavior by the experimental group than the control. The results of the observations are more important than interviews because we need to know what people do, not what they say they do. If health education changes knowledge, but not practices, it cannot be said to be successful [17].

Many children who attended the summer clubs acquired new information, especially about schistosomiasis infections and flies as disease transmitters. Many of the children reported that they adopted hygienic practices such as regular hand washing and refraining from swimming in the canal. Researchers met children who, three months after the end of the summer club, were still following the hygiene practices they had learned: helping clean the public standpipe, collecting garbage and throwing it into the garbage collection cart, and cleaning in front of their homes. Girls, who were already learning their domestic roles from their

Table 2. Hand Washing Practices

	Village A				Village B			
	Experimental		Control		Experimental		Control	
Response	Freq	%	Freq	%	Freq	%	Freq	%
Before								
Eating	40	95	40	95	35	95	36	97
Preparing food	37	88	34	81	32	86	31	84
Feeding infants	11	26	3	7	7	19	7	19
After								
Eating	34	81	39	93	34	92	31	84
House work	38	90	24	57	30	81	25	67
Defecating	21	50	6	14	0	0	0	0
Sleeping	1	2	0	0	0	0	0	0
Sample	42		42		37		37	

Interviewers $n = 158$
Respondents gave multiple answers

mothers at home, were especially receptive to hygiene messages and often told them to their mothers.

EXTENSION AND REPLICATION OF THE PROGRAM

The study showed that different groups of educators can effectively convey health education messages within a single community. Following this multifaceted strategy, women, men, and children are exposed to health messages at different times and in various settings, thus reinforcing and strengthening the messages. The success of the program is reflected in the greater knowledge and more healthful practices of the experimental group as compared to the control group.

The institutionalization of the health education program should focus on Public Service Candidates, primary school teachers, and especially nurses. The effectiveness of nurses, operating in the health units, is noteworthy as the nurse/clinic setting is replicated in most developing countries. The public clinic is often the first contact of the mothers and their children with the formal health sector.

The summer school health education program has already been expanded beyond the two study villages. The utilization of the long summer vacation for health education activities is replicable within Egypt, with its three-month long summer vacation, and in many other developing countries. In Egypt, some money is usually available for summer programs which are currently mainly recreational rather than educational. The health education role of Public Service Candidates, who are often assigned to health units but may not have a plan of work, could be extended. Most of the educators reported personal and career benefits from their participation in the health education program which would benefit the communities in which they live and work.

Women leaders as peer educators have the highest dropout rate and were least cost effective due to the need for individual training and monitoring. It is difficult to work with informal community leaders in Egypt, as there are few opportunities to innovate outside the formal government structure. The activities of local voluntary organizations are circumscribed by Egyptian law.

The research team recognized that the project could best be sustained by expanding collaboration with the various sectoral authorities: Health, Education, Social Welfare, and Local Government. The insights gained in this project could be incorporated into training for nurses, as nursing training is carried out locally in the seven nursing schools in Menoufia Governorate. Training material prepared during the project could be used for nurses training, as well as for in-service training for health unit staff. Working through the Ministry of Social Affairs and/or the Ministry of Health, materials and encouragement should be given to Public Service Candidates attached to health units so that they can carry out community based health education on a governorate-wide basis. Village

councils, under the Ministry of Local Government, can pursue local sanitation improvements.

CONCLUSION: A HOLISTIC MODEL OF HEALTH EDUCATION

The findings of the research project suggest a more complex holistic model of the health education process than that used at the beginning of the project. The health education process involves six activities: 1) the identification of health problems, behaviors and their rationale in target communities; 2) the design and pretesting of messages and materials; 3) identification of the target audience(s); 4) selection and training of health promoters; 5) health education to facilitate more healthful behavior; and 6) monitoring and evaluation for feedback and sustainability.

The local communities should be involved in all these stages. However, a further dimension should be added: partnership with local and regional authorities, especially during training, monitoring and evaluation. The intervention is a collaborative process between local people, social scientists, health educators, and administrators who are responsible for its continuation.

The research team is now studying the local management structure in one study village, in order to test a partnership model of decision-making in environmental improvement and health education. The sustainability of all the project components, including health education, depends on a partnership between all the actors involved.

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