

Knowledge of Men and Women about Reproductive Tract Infections and AIDS in a Rural Area of North India: Impact of a Community-based Intervention

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ABSTRACT

This study of a community-level health-education intervention on reproductive tract infections/sexually transmitted diseases (RTIs/STDs) was conducted in three villages of Haryana in north India. The study was aimed at increasing awareness among men and women of reproductive age about the prevention and treatment of RTIs, modes of HIV/AIDS transmission, and methods of prevention. Health education was imparted through one-to-one interactions with men and women during home visits, at village-based clinics and health camps, and through health-education talks with men and women. Cumulative effects of the intervention were examined at the end of the survey by comparing the change in knowledge from the baseline. Records of clinic attendance were examined to assess the probable impact of the intervention on clinic attendance. Baseline and follow-up evaluations revealed that there was an improvement in the median total knowledge score of women from 0 to 6, whereas it remained at 5 for men both at baseline and follow-up. Knowledge about RTI/STIs increased among both men and women from the median score of 0 to 2 and from 0 to 3 respectively. The median knowledge score on HIV/AIDS declined among men from 4 to 2 but increased from 0 to 3 among women. Clinic attendance for RTI/STI cases, referred to the Naraingarh hospital, showed an eight-fold rise from an average of four cases per month in 1998-1999 to an average of 35 cases per month in 1999-2000. The findings of the study suggest that health-education strategy through home visits, RTI case management and counselling, and organizing a weekly clinic and occasional camps and health-education talks can increase the level of awareness about RTIs/STIs among both men and women and improve clinic attendance.

Key words: Reproductive tract infections; Sexually transmitted diseases; Sexually transmitted infections; HIV; HIV infections; Acquired immunodeficiency syndrome; health education; Knowledge, attitudes, practice; Community-based studies; India

INTRODUCTION

The burden of reproductive tract infections (RTIs), including sexually transmitted diseases (STDs), is a major public-health concern especially in developing

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countries. The worldwide incidence of major bacterial and viral STDs is estimated to be over 333 million cases per year (1). After pregnancy-related causes, STDs are responsible for the greatest number of healthy years lost among women of reproductive age in developing countries. Serious long-term complications as a sequel to STDs in women, men, and newborns are well-documented. The presence of an STD, particularly ulcer-causing STDs, can enhance the acquisition and transmission of HIV. In addition to health effects, STDs carry great social and economic consequences particularly for women.

These infections often go undiagnosed and untreated in developing countries predominantly due to lack of awareness and non-availability of rural healthcare facilities. Sixty-one percent of women in another rural area of Haryana of north India had symptoms of RTIs, but their treatment-seeking practice was very poor (2). The inability of women to influence the sexual behaviour of men, their dependence on men, and their impoverish status within the family add to the difficulties of setting up community-based RTI/STD-prevention and control programmes (3). A 'culture of silence' prevails that inhibits women from revealing their private problems to others due to various social factors associated with RTI/STDs. Creating awareness about the problem and its management could be an important step to change healthcare-seeking behaviour (4).

The present study was, therefore, carried out with the objective of creating awareness in the community about the causes, symptoms, prevention, and management of RTIs/STDs and AIDS and to document the change in knowledge parameters which may precede a behavioural change. As a part of this project, health-education activities were carried out to influence healthcare-seeking behaviour for RTIs/STIs. The experience gained from this health-education intervention is discussed in this paper.

MATERIALS AND METHODS

Haryana is a north Indian state, and Ambala district is located in the north of Haryana. Most villages and towns in the district are well-connected by road and rail. There is a wide network of rivers and canals throughout the district. All the villages have access to electricity and telephone lines. The district has two sub-divisions and four community development blocks. The primary health centres (PHCs) in this area cater, on average, for 45,000 people. PHCs serve as the first-level contact for village people with government medical doctors. Each PHC has a network of sub-centres. Both male and female health workers operate and provide domiciliary and ambulatory healthcare services from these sub-centres.

Three villages—Lalpur, Ferozpur, and Andheri of PHC Ambli—were chosen purposively for the study as a weekly clinic is organized at the Lalpur sub-centre as part of the community health service programme of the Community Medicine Department of Postgraduate Institute of Medical Education and Research, Chandigarh, India. Two villages—Ferozpur and Andheri—fall under

the same sub-centre and are nearby. Two health workers—one male and one female—recruited for the project, were given training to enable them to conduct the survey and to carry out group health-education activities. Semi-structured tools were developed to record the socio-demographic profile and knowledge of respondents on RTIs/STDs and AIDS. These tools were pre-tested, modified, and translated into Hindi. Separate interview schedules were developed for males and females.

A baseline survey was initiated in March 1998 before launching the health-education intervention. It took about three months to collect baseline information from the three villages. Each house in the villages was visited, and 403 men and 329 women were interviewed. Informed consent from the participants was taken before interview. Houses found locked or where respondents were not available were revisited. Visits were also made in the evening and on holidays to interview all available respondents. A follow-up survey was conducted two years later to assess the change in knowledge about RTIs/STDs and AIDS. A complete house-to-house visit was done at baseline, while sample survey was done at follow-up, because the baseline survey was part of the first round of active surveillance activity that required a visit to all households. The objective of follow-up was to assess knowledge only; it was, thus, done on a sample population to save time and money.

A sample size of 220 was estimated for men and women separately on the assumption that 50% of women and 60% of men might have correct knowledge. The sample size was calculated considering a population of around 400 women and 450 men in the village, precision of 5%, and alpha risk of 5% with design effect of 1. This sample included additional 17 men and 23 women on account of non-availability factor. In total, 219 women and 191 men could be interviewed. Each alternate house was visited, and the eligible persons were interviewed. A second visit was paid to the persons who were not available on the first visit.

Health-education activities were initiated after the baseline survey. In the first year, the emphasis was on case identification and referral to clinics and special RTI/STI health camps organized in the villages. The project health workers visited each house in the three villages at least once in three months. Baseline survey information was collected during the first round of home visits in first three months of the study. Subsequently, more emphasis was given to providing health

information to male and female respondents, aged 15-49 years, about RTI/STIs during home visits. During home visits, the project female medical officer and investigators supervised the project health workers.

Six RTI/STD camps—two in each village—were organized to manage the cases referred during home visits. The first round of camps was organized in the first year and the second round in the second year. These camps were well-advertised in the villages through announcements and village key-informants. Facilities for per-speculum vaginal examinations were made available, and medicines for RTIs/STDs were given free of charge.

Twenty health-education sessions, conducted during the second year of the intervention in the entire PHC Ambli area, were addressed to married women aged 15-49 years. Nine health-education talks—4 for women and 5 for men of reproductive age—were conducted only in the study villages in the second year of the intervention. There were 15-20 participants in each health-education talk group. Women were married and were predominately in the first 15 years of their married life, i.e. 15-30 years of age. There were 2-3 women aged 30-49 years in each group. All female groups were similar in terms of their composition and numbers. Male groups were more mixed in terms of their age structure. Both married and unmarried men aged 15-60 years were present during the talks. Participation of elderly males occurred in one health-education talk conducted in the evening. At other places, primarily younger males participated. Each health-education session was planned in an interactive way. At the beginning, focused questions were asked to assess participants' understanding of the transmission and prevention of RTI/STIs and HIV/AIDS. This was done with the aim of tailoring the health-education talk and incorporating the experiences of the group. One-to-one counselling was done in clinics and camps. The follow-up survey was conducted one month after the last health-education session.

Pamphlets designed in simple vernacular language were given to the cases on the understanding that even if they were not able to read, someone else in the family or neighbourhood may help them in this endeavour. The pamphlets were of two types. One was focused exclusively on RTIs. The major messages in this pamphlet were that RTIs can occur because of unhygienic practices relating to self-care, delivery, abortions, or at the time of internal per vaginal examination. These can also be transmitted through sexual contact and are pre-

ventable and treatable for which services are available in or near their village. It is important to comply with the doctor's instructions, and treatment should be taken by both husband and wife if so advised. Another pamphlet was designed for HIV/AIDS. It has messages on modes of HIV/AIDS transmission and prevention. This pamphlet was pictorial and had pictures on how HIV can/cannot be transmitted and how to use condoms. The first pamphlet was used during home visits, clinics and camps, and health-education talks. The second pamphlet on HIV/AIDS was used primarily during health-education talks with men. Wall posters were meant for disseminating information on HIV/AIDS only.

Data analysis

Statistical analysis was done using the Epi Info 6 software (5). The statistical significance was computed using the chi-square test for proportions, and a p value of <0.05 was taken as significant. Sociodemographic characteristics of the population, such as age group, education group, caste, religion, type of house, income group, and availability of television in the house, that can affect knowledge were compared at baseline and follow-up and were not statistically different.

A scoring system was developed. All correct responses were given a score of 1 and incorrect responses or no responses were given a score of 0. The total score was 10. Questions included in the scoring system were related to knowledge about the prevention and treatment of RTI/STDs and AIDs; modes of transmission of HIV; a healthy-looking person can have HIV infection; transmission does not occur through mosquito bites; and prevention is possible through use of condoms. The mean knowledge score of men and women was computed for all the questions and separately for section on AIDS and RTIs/ STDs both at baseline and follow-up. The median scores and 95% confidence interval were calculated using the Epi Info-6 software, as the mean scores for all the groups were not distributed normally.

RESULTS

In total, there were 403 men and 329 women at baseline and 191 men and 219 women at follow-up surveys. Their sociodemographic characteristics, i.e. age, literacy status, and occupation, at the baseline survey were not statistically different from those at the follow-up survey. The mean age for men was 33.9 (± 7.3) years at baseline and 34.8 (± 8.1) years at follow-up, and for

women it was 29.9 (± 6.5) years and 31.3 (± 7.0) years respectively. About half of women and one-third of men were illiterate both at baseline and follow-up. Only 16% of women at baseline and 19% at follow-up reported doing some income-generating work. The predominant work was agriculture, followed by labour. Most men were also doing agricultural work or labour.

The RTI/STI knowledge score, AIDS score, and total knowledge score for men and women were not distributed normally. The median total knowledge score of men did not change, but the median AIDS score declined from 4 to 2, and the median RTI/STI score improved from 0 to 2 at follow-up (Table 1). More men had heard of RTIs/STIs and AIDS at follow-up. Their knowledge on various methods of AIDS transmission either showed no significant change or even declined for questions on transmission perinatally or through unsterilized syringes and needles and unsafe blood transfusion. The knowledge of men that RTI/STIs are preventable and treatable increased significantly (Table 2).

The median total knowledge score of women improved substantially from 0 to 6, and it improved both for RTI/STIs and AIDS (Tables 1 and 2). A significantly greater proportion of women had heard of RTIs/STDs and HIV/AIDS at follow-up compared to baseline ($p < 0.01$). There was a significant increase in women's knowledge on all listed parameters for RTI/STDs and HIV/AIDS.

Television (71%), interactions with health workers (37%), and reading wall posters (20%) were the pre-

dominant sources of information for women. Among men, television was also the most popular source (48%) but it was less popular than it was among women. About 27% of men acquired information by interactions with relatives and 28% by reading wall posters. Health workers were not a popular choice (9%). Twelve percent of men gained knowledge from lectures and another 12% by reading newspapers. Eleven percent of women and 8% of men quoted doctors as a source of information.

The patient attendance at the regular weekly clinic was analyzed to assess the possible impact of health-education activities on weekly clinic attendance. At the Naraingarh hospital, during April 1998–March 1999, 45 patients were examined, i.e. an average of 4 RTI/STI cases per month. The number increased to 422 patients during April 1999–March 2000, i.e. an average of 35 patients per month, showing an increase of more than eight times compared to the previous year. In the same period, i.e. during April 1999–March 2000, the project health workers referred 133 cases, and 78% of them received treatment.

DISCUSSION

RTIs and STIs are important public-health problems in the developing world. Urgency to tackle these problems has increased since the emergence of the HIV/AIDS pandemic. Due to the stigma attached to the acquisition of these infections and due to the non-availability of comprehensive quality reproductive health-care at a convenient distance, these problems go unnoticed. In traditional rural settings with high levels of illiteracy and helplessness of women in the decision-making process, discussions about RTIs/STIs and AIDS are especially difficult. Area-specific health-communication approaches need to be tested to influence reproductive health behaviour. Health communication is the systematic attempt to positively influence the health practices of large populations. The primary goal of health communication is to bring about improvements in health-related practices and, in turn, health status.

Many health-behaviour theories and models describe the communication process for health-behaviour change. Combination of health-belief model and communication-persuasion model was applied in this study to cause behaviour change. This community-based intervention was aimed at reducing the knowledge deficit, creating awareness, providing enhanced opportunities for information exchange, and also providing social

Table 1. Knowledge scores before and after intervention

Knowledge score	Median score			
	Baseline	95% CI	Endline	95% CI
Male				
Total knowledge score	5	2-6	5	4-5
Knowledge score–AIDS	4	0-5	2	2-3
Knowledge score–RTI/STDs	0	0-1	2	2-3
Female				
Total knowledge score	0	0-0	6	5-6
Knowledge score–AIDS	0	0-0	3	2-3
Knowledge score–RTI/STDs	0	0-0	3	3-3
CI=Confidence interval				

support to maintain the change by providing facilities to diagnose and treat RTIs/STDs cases. This may alter the behavioural and psychosocial attributes relating to RTIs/STIs. One-to-one interactions during home visits, group interactions during health-education activities, and patient counselling during RTI/STI camps and clinics were aimed at bridging the knowledge and attitude gap and prompting people to get themselves examined and to take treatment which is available free of charge and at a very convenient location. RTI/STI services were integrated with routine weekly clinics at the Lalpur village and Naraingarh hospital to remove the stigma associated with it.

ducted 2-3 days prior to the camp date, the response rate improved to some extent (unpublished observation). In the current Naraingarh study in the first year, focus was on the detection and referral of active cases through home visits and one-to-one interactions only. In the second year, intensive special health-education activities were conducted, and the health workers of the local PHC were also involved. With periodic delivery of health-education messages, the number of women seeking healthcare at the Naraingarh hospital increased from four RTI/STI cases per month in 1998-1999 to an average of 35 patients per month during 1999-2000. The programme took about one year to gain momentum, and

Table 2. Knowledge on RTI/STDs and AIDS before and after intervention

Knowledge parameter	Males				Females			
	Baseline (n=403)		Follow-up (n=191)		Baseline (n=329)		Follow-up (n=219)	
	No.	%	No.	%	No.	%	No.	%
Heard about RTI/STDs	164	40.7	159	83.2*	28	8.5	218	99.5*
RTI/STDs are preventable	136	33.7	141	73.8*	17	5.2	217	99.1*
RTI/STDs are treatable	112	27.8	127	66.5*	10	3.0	217	99.1*
Heard about HIV/AIDS	221	54.8	135	70.7*	70	21.3	168	76.7*
HIV/AIDS is not treatable	161	40.0	83	43.5	18	5.5	70	32.0*
HIV is transmitted through sexual intercourse	212	52.6	92	48.2	56	17.0	160	73.1*
Pregnant mother to baby	201	49.9	49	25.7*	52	15.8	95	43.4*
Unsterilized syringes and needles	207	51.4	66	34.6*	52	15.8	105	47.9*
Unsafe blood transfusion	205	50.9	65	34.0*	49	14.9	112	51.1*
HIV-infected person may look healthy	130	32.3	51	26.7	8	2.4	73	33.3*

*p<0.05

Experiences of integrating STD-control programme with the primary healthcare system are limited. In a study carried out in Mwanza, Tanzania, STD services were delivered at rural health units. Case identification and referral was done. It was observed that 57% of patients who did not return for follow-up were not given health education (6). In our previous study in Mohindergarh, Haryana, all women in the study villages were interviewed to ascertain whether they had symptoms of RTIs/STIs. Everyone was motivated to get their per-speculum examination done to know the extent of RTIs after internal examination. Only 42% of symptomatic and 24% of asymptomatic women used services from RTI camps organized in their own villages (2). This area was at eight-hour journey by motorized transport on good roads from our department and was completely new to us. Without health education, the response rate was very low for the first few days. When the strategy was changed, and group-education meetings were con-

an eight-fold increase in patient attendance was observed in the second year. Compliance to project health worker's case referral was also satisfactory as 78% of 133 referred cases received treatment. This response rate was higher than that observed in the Mohindergarh study. However, this increased number needs to be interpreted cautiously as case referral was also promoted from the neighbouring villages also by health-education activities and by the involvement of health workers from the Haryana health services.

Gender differences regarding changes in knowledge and treatment-seeking behaviour were observed in this study. Women outnumbered men in this regard. Various factors might have contributed to these observations. Women, the prime users of clinic and camp services, might have acquired more knowledge during this process. A lesser number of men attended the clinics and camps. This may be because of a lower prevalence

of STDs among men compared to women. The paucity of space in these clinics and camps, with overcrowding of women, might have prevented men from seeking consultation. It could also be due to the fact that women were present during home visits in the day time and had more time for discussion when contacted by the female workers compared to men who were generally available in the evening and were tired after work, hence less responsive. In the health-education talks, women were more forthcoming and aware of their problems than men despite the differences in literacy status.

The present study has shown an increase in men's knowledge score about RTI/STDs but showed a dip for HIV/AIDS. The availability of services for RTI/STDs and inter-spouse communication might have contributed to better knowledge among men. Community momentum and diffusion of information for RTI/STI services might also have played some role. In our study, information on AIDS was disseminated to men during the health-education talks. The knowledge levels about AIDS remained low even after the intervention, although it showed an increase among women compared to baseline. HIV communications probably did not diffuse in the community, and mass media remained the popular source of information on HIV/AIDS. In other community-based studies also, knowledge of women about AIDS was found to be low. Only 39% of women from urban Delhi reported having heard of AIDS (7). One in three married women in Bombay had not heard of AIDS (8). One in six women in 13 Indian states had heard of AIDS (9). Thus, despite extensive mass media campaign, information on HIV/AIDS has not percolated down to married women in rural and even urban communities, although television and radio continue to be popular sources.

Sustained behavioural change is a long-drawn process. Communication strategies at the community level may have some role to influence the change in knowledge and to prompt people to seek health consultation. Our study demonstrated that it took about one year to mobilize women to seek health consultations. Men, although they did not come forward for consultation, might have facilitated their spouses by allowing them to seek consultation. The health workers indeed played an important role in educating women, the same may further be strengthened. Strategies to educate men through their peers may be tried in the community as relatives and friends contributed to their knowledge. Specifically, we need to learn how to increase peer support and develop

a social network to open more pathways through which supportive conversations can occur. A different strategy for men needs to be tried where services are available only for men.

The present study is not without its limitations. Lack of a control group lessens the extent to which internal validity can be adequately assessed. Future interventions should include a placebo group in the study design to control for the effect of differential attention as a result of intervention. The use of convenience sampling is complicated by self-selection bias and attrition which weakens generalization for other populations. Different components in the study, such as house visit and group health-education meetings, were not analyzed separately. However, the patient attendance in the second year rose substantially compared to the first year. This shows that only one-to-one interactions during home visits, done in the first year, were less effective compared to a comprehensive strategy where active case surveillance was integrated with group health-education activities in the second year of the intervention.

This study provides experience of the feasibility and efficacy of a health-education programme in a rural setting of north India. In this study, we have gained some insight into the impact of health education on the knowledge of men and women about RTI/STIs and AIDS and treatment-seeking behaviour. The observed effect was in the direction of greater positive change for women compared to men.

To conclude, health-education strategy through home visits, RTI case management and counselling, and organization of regular weekly clinics, periodic camps, and health-education talks could increase the level of awareness about RTIs/STIs among both men and women. It is important to note that no single intervention can be one hundred percent effective. The challenge now faced by RTIs/STDs and HIV/AIDS-prevention researchers and practitioners is to refine and integrate intervention efforts to optimize behaviour change. Such experiences could be useful in developing effective health-education strategies.

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