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CHANGES IN MARRIED MEN'S REPRODUCTIVE HEALTH KNOWLEDGE AND UTILIZATION OF CARE IN THE DEMAND BASED REPRODUCTIVE HEALTH PROJECT IN BANGLADESH

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Abstract- This paper presents part of findings from a large project that provided demand based reproductive health interventions targeting both male and females in three low performing areas of Bangladesh. Married males were recruited and interviewed both in baseline and surveys through systematic random sampling. Under the intervention activities, the behavioral change communication (BCC) materials were revisited and modified according to clients' needs. Issue based street drama were conducted at local market places to increase awareness. The health service delivery systems in the facilities in project areas were made more accommodative to males through training of service providers. Couple counseling was promoted and couples were rewarded for limiting their families. Peer promoters were established who performed as the linkages between male clients and the service providers. The study found significant changes in men's reproductive health knowledge and utilization of care at the end of the project; males knowledge improved in terms of pregnancy complications, methods of contraception and prevention of sexually transmitted infections (STI). At end line, significant higher proportion of males obtained care from qualified providers for general health problems and reported STI symptoms. The BCC materials are inadequate to meet needs of males. The study suggested for more accommodative service delivery systems for males. There should be increased communication between providers and males who accompany their wives at facilities. Innovative approaches should be applied providing information to males, for instance, digitization of information targeted to males can be tried through provision of health messages using mobile phones.

Keywords- Male, family planning, reproductive health, pregnancy complication, maternal health, Bangladesh

Introduction

Men's shared responsibility and their active involvement has been identified as very crucial for gender equity and reproductive health promotion (ICPD 1994) [1]. Previous study importantly identified gender inequality as a major barrier in reducing adverse reproductive health outcomes [2-3]. It seems very urgent to address men's reproductive and sexual health needs if reproductive health programs to expect men sharing equal responsibilities with females in reproductive health promotion. Changes in men's and women's knowledge, attitude and behavior are necessary conditions required in achieving the targets of Millennium development goals (MDGs) [4].

In the context of growing recognition of men's health problems [5] and their gatekeeper's role in the decision making of female health care seeking [6], shared responsibility of male is very crucial. Male's role in family planning remains largely unutilized [7]. Although many men believe that men should share responsibilities with their partners regarding family planning issues, small proportion actually take part in it [8, 9]. Globally family planning programs are almost exclusively women oriented and lack of involvement of males has been reflected in the limited options available to them [8]. It has been emphasized by previous study that male should be brought into a wide range of reproductive health services in such a way that they are supported as equal partners and responsible partners, as well as clients in their own rights [2]. Whereas, in most of the family planning programs the major programmatic challenge is to increase the degree of male's involvement by expanding wide range of services in ways that protect and support specific needs for both men and women [10, 2]. In Bangladesh primary health care program has long focused upon maternal and child health including family planning rather than the delivery of comprehensive care for both male and females that leads to very limited services provision to men [11-12].

Men remain an authority for health care seeking of women [6], while involving husbands and encouraging joint decision making in reproductive and family health may provide an important strategy for better maternal health outcomes [13]. Evidence shows that educating pregnant women with their male partners yield a greater net impact on pregnancy related maternal health behavior compared to women groups educated alone [14]. The study done in Nepal emphasized that women educated with partners could identify more pregnancy complications and family planning methods compared to others who were educated alone, which means women learn and retain important information when they are educated with their partners [15].

Since the advent of HIV/AIDS, greater attention has been given on STIs as a major threat to reproductive health of men [5]. Male who are clients of the sex workers are particularly considered as bridge population for HIV epidemic [16-17]. A study done in Bangladesh highlighted that general male population are vulnerable to STI and HIV due to their high risk behavious; it has reported that 17% of the respondents ever had pre or extra marital sex and around 10% experienced sex with sex workers in the last year while condom use during sex with sex workers was 40% [18].

Findings from previous studies show that overall reproductive health knowledge and service utilization among men is generally at low level [19-20]. A study identified some obstacles for low participation of male in reproductive health care seeking; men's reluctance to use services, lack of knowledge of men on their own and women's reproductive health, lack of communication by men about sexuality in their relationships, sexual myths, health provider's perceptions and false assumptions about male [21]. While other studies highlighted that lack of knowledge, non availability of commodity like acceptable contraceptives and lack of services with quality of care deter men from sharing the responsibility in reproductive health matters [22-23].

There is little information available on health care utilization of males in Bangladesh. To achieve increasing male's participation in reproductive health is generally found to be difficult and adopting new perspectives can be helpful for reproductive health promotion [10]. This paper presents part of findings from a large project that provided demand based reproductive health interventions targeting both male and females in three low performing areas of Bangladesh [24]. A demand-based strategy has been adopted for service delivery under the project because it has advantages of focusing on individual choice and preference. Three components were the basic for a demand-based strategy in this project; (1) clients should have thorough knowledge about the existing services and opportunities available; (2) they should be able to place full confidence in the technologies that they demand; and (3) clients should have access to appropriate methods to meet their needs. The present study intended to explore whether a demand based approach increases men's reproductive health knowledge and their service utilization for selected reproductive health indicators in low performing areas of Bangladesh.

Materials and Methods

The National Institute of Population Research and Training (NIPORT) under the Ministry of Health and Family Welfare (MoHFW) launched the three-year duration Demand-based Reproductive Commodity Project (DBRHCP) in July 2005. The Canadian International Development Agency (CIDA) through United Nations Population Fund (UNFPA) sponsors the project, which is being implemented in four wards (24,25,26 & 47) of Dhaka City Corporation and two rural upazillas (Raipur and Nabiganj). The objective of the study was to improve the quality of reproductive health service delivery, improve males' knowledge on selected reproductive health issues and enhance service utilization by males in the low performing project areas. In the project areas, the existing service delivery approach was modified to improve efficiency and quality of services rather than merely increasing the quantity. It is anticipated that the entire chain of service provision was improved through the interventions under the DBRHCP, including service delivery, follow-up, counseling, keeping records, monitoring and reporting, as well as logistics and supplies. The BCC activities were focused on both men and women. The existing BCC materials were revisited and modified according to the needs of both male and females. Issue based street drama were conducted at market places to increase awareness in the community particularly targeted to males. The health systems were made more accommodative to males, couple counseling was promoted. Service providers were trained on provision of male friendly services. Couples were rewarded for limiting their families and utilizing family planning services. Peer promoters were established who performed as the linkages between clients and the service providers. RTM, and Population council were two implementing partners who provided interventions in the project areas. Icddr, b's role was to assess the effect of the project over the period.

The study is based on surveys at baseline and endline of socio-economic and demographic information, men's knowledge on pregnancy/birth complications, awareness on FP methods, RH services, utilization of service centers by married males. As a part of the baseline survey icddr,b conducted an enumeration of all households in the three project areas using locally recruited enumerators. This provided socio-economic and demographic information as a basis for targeted interventions, and a sampling frame for the baseline survey. Enumeration data allowed identification and sampling of married women and their husbands. Base line data was collected during November 2006 to March 2007. Endline was conducted during November 2008 to March 2009.

A sample of 3199 husbands of married women from three areas was selected and interviewed in baseline Survey through systematic random sampling. Similarly, at end line survey 3340 males were interviewed using another sample from same population group. Using structured questionnaires, males were interviewed by 12 trained interviewers. We obtained informed consents from the respondents prior to data collection. The study was approved by the Research Review Committee and Ethical Review Committee of icddr,b. Data was entered in Visual Foxpro, version 6 and descriptive analysis was done using SPSS computer packages, version 10. Descriptive analysis done to assess changes on knowledge on FP methods, pregnancy/ complications and prevention of STI related diseases. Information collected on men's service utilization for general health and STI problems. Reported STI problems were like; discharge of pus through urethra, sore/ulcer in genital areas, burning during urination, and pain in the scrotum. To assess the difference between baseline and endline, proportional test was applied using version 8 of Stata Computer Package.

Limitations: This study had some limitations. It presented data on improvements of males' knowledge on selected issues but could not assess effects in practice level. To capture the impact of interventions in practice level, it would have required more follow up time, which was not possible due to time constraints. The interventions are given as a package, so it is not clear which components of the interventions were more effective compared to others. The intervention activities covered both female and male populations in the project areas in an integrated way so it was not configured utterly for males.

Results

Profile of the Surveyed Men

In each study area, socio demographic characteristics of surveyed males in baseline and in endline were similar despite different samples were interviewed. Among the surveyed married men, relatively-low proportions were aged less than 25 years (2 - 5%). The majority of the men were aged 25 - 49 years, irrespective of the study sites. The proportion of men aged 25 - 29 years was the highest in the urban slums (20%) and the lowest in Nabiganj (10% in baseline and 9% in endline). More than 10% of the respondents in the urban slums and over about 20% in Raipur and Nabiganj were aged 50 years or older [Table-1]. Most (92%), married men surveyed were Muslims and only 8% were Hindus (results not shown). [Table-1] also shows that educational attainment was generally low among

the married men. Over one-third of the men in the urban slums and in Raipur both in baseline and endline had no education. In Nabiganj, about 39 - 50% of the men had not completed primary education. In general, the proportion of men who completed secondary or higher education was low (2 - 5%). The most common occupation for the rural men was agricultural while about one-third of the urban slums men were self-employed, e.g. barber, laundryman, boatmen, and 21 - 25% were businessman. In urban slums 3 - 4% was garments workers. In urban slums, higher proportions of men compared to rural areas had regular personal earnings. In rural areas 32 - 53% of the men reported had seasonal earning compared to only 1 - 4% of the urban slum men. About one-third of the rural men had a monthly income of Taka (local currency) 3,000/- or less compared to 7 - 12% of the urban men. About 36 - 53% of the rural men had a monthly income of Taka 3,001/- to 5,000/- compared to 46 - 71% of the urban men [Table-1].

Men's' Knowledge on Selected Reproductive Health Issues

The male respondents were asked if they had heard about any maternal complications during pregnancy, during delivery, or after delivery that might be potentially life-threatening for woman. Irrespective of the study areas, significantly higher proportions of the men in end line compared to baseline recognized maternal life-threatening problems such as pre-eclampsia, eclampsia, placental tear, and mal-presentation.

Overall 64-87% of the rural men and 60-65% urban men are aware of pregnancy related life-threatening problems [Table-2]. In the urban areas, tetanus was the most commonly-reported life-threatening problem (37-45%) followed by prolonged or obstructed labour (27%) and preeclampsia (20-24%). In the rural areas, commonly-cited life-threatening problems known to men were preeclampsia, tetanus, and prolonged/obstructed labour.

Table 1- Profile of the surveyed married men by study areas

Age (years)	Dhaka (%)		Raipur (%)		Nabiganj (%)	
	Baseline (n=1,063)	Endline (n=1,217)	Baseline (n=1,053)	Endline (n=1,114)	Baseline (n=1,080)	Endline (n=1,009)
20-24	4.8	4.4	3.1	3.1	1.9	2.3
25-29	20	19.3	14.2	13.4	9.6	8.7
30-34	18.8	22.1	12.8	14.3	13.1	12.5
35-39	18.6	21.9	16	14.6	16.3	18.1
40-44	13.8	13	16	16.6	16.4	13.5
45-49	11.3	10.1	14.6	14.1	14.7	14.1
50-54	8.3	4	11.5	11.4	11.9	13.5
55-59	2.4	2.9	8.7	7.5	8.3	8.7
60+	2	2.3	3	5.1	7.8	8.7
Educational status						
No education	27.3	38	29.9	38.6	50.2	
Primary incomplete	22.1	22	27.3	18.3	20.7	
Primary complete	44.2	10.3	10.8	36.2	7.8	
Secondary incomplete	4.5	26.8	27.2	3.8	17.9	
Secondary complete and higher	1.8	2.9	4.8	3.2	3.3	
Earning patterns	(n=1,029)	(n=1,217)	(n=1,114)	(n=961)	(n=1,009)	
Mode of earnings						
Regular earning	87	99	65.4	35.9	40.9	
Seasonal	4.3	0.6	32.1	58.8	53.8	
Occasional	8.7	0.4	2.5	5.3	5.3	
Monthly earning						
£3,000	11.9	7.5	35.5	33.5	31.8	
3,001-5,000	70.8	45.6	36.1	49.2	36.4	
5,001-6,000	10.4	17.9	9.2	6.3	10.7	
6,000+	7	29	19.3	10.9	21.1	

Table 2- Married men's perception on pregnancy-related life-threatening problems, by area

	Dhaka (%)		Raipur (%)		Nabigonj (%)	
Proportion of men knew about pregnancy-related life-threatening problems	Baseline (n=1,063) 59.5	Endline (n=1,217) 64.7*	Baseline (n=1,053) 86.1	Endline (n=1,114) 87.9	Baseline (n=1,080) 84.9	Endline (n=1,009) 74.6**
	Baseline (n=633)	Endline (n=787)	Baseline (n=907)	Endline (n=979)	Baseline (n=917)	Endline (n=753)
Preeclampsia or any symptoms of pre-eclapsia (severe headache/blurry vision/ high blood pressure)	19.7	24.0*	30	63.6**	68.8	88.9**
Eclampsia	19.1	25.3*	4	21.0**	38.9	30.0**
Per-vaginal bleeding	9.8	2.2	25.8	0.4	5.8	0.8
High fever with foul-smelling- vaginal discharge	0.8	32.1**	1.4	22.9**	0.3	20.0**
Jaundice	16	10.3	3.2	7.3	4	3.6
Tetanus	40	37	21.1	28.3	36.4	19.9
Mal-presentation	11.1	25.7**	14.1	20.3**	10.8	18.2**
Prolonged or obstructed labour	27	26.8	74.1	19.7	24.4	20.6
Tear of placenta	0.9	19.5**	1.9	18.6**	0.9	15.9**
Weakness/loss of appetite	3.8	1	15.8	4.4	4.4	0.1
Malnutrition	2.1	1.8	12.3	3.3	0.8	0.5
Others	0.2	1	5.5	5.2	1.3	0.9
Do not know	19.7	4.4	5	1.6	9.6	0.5

*Multiple responses are considered; *P<.01, **p<.001*

Table 3- Knowledge of married men about contraceptive methods

	Dhaka (%)		Raipur (%)		Nabigonj (%)	
	Baseline (n=1,040)	Endline (n=1,211)	Baseline (n=1,045)	Endline (n=113)	Baseline (n=951)	Endline (n=996)
Condom	61.3	87.2**	70.5	87.5**	61.7	77.3**
Oral pill	98.1	98.6	98.4	98.9	97.2	98.8
Injectable	65.8	84.5**	68.7	85.4**	66.1	68.5
IUD (Intra Uterine Device)	5.4	5	10.8	9.5	7.9	6.4
Female sterilization	18.8	24.1*	21.1	23.5	29.9	46.2**
Male sterilization	10.9	19.0**	7.5	15.0*	12.3	32.9**
Implant/Norplant	6.3	7.6	4.8	6.1	6.6	10.5*
Safe periodic abstinence	1.3	3.3	2.5	3.3	0.7	1.3
Withdrawal	0.6	0.6	0.7	1.1	0.5	0.3
Other methods	0	0.2	0.4	0.2	0.2	0

*Multiple responses are considered; *p<.01, **p<.001*

[Table-3] shows knowledge of the men on modern contraceptive methods. Although in baseline majority of the men (97-99%) knew about oral pills, two-thirds knew about injectables or condoms. However, in end-line, higher proportions of the men compared to baseline knew in all the areas about injectables or condoms as contraceptive methods. Similarly, higher proportions of the men in endline compared to the baseline knew about male or female sterilization in all the areas.

Men's Awareness about Health Facilities and its' Utilization for General Health Problems

More than 80% of the men in the three areas were aware of a health facility in their locality [Table-4]. In the rural areas, higher proportion of the men in endline compared to baseline knew about the Government mobile/satellite clinics. Higher proportion of the men in urban slum areas had knowledge about NGO satellite clinics in endline compared to baseline.

One-fifth of the men visited a health facility to get health care services for themselves or their spouses during the last three months. A higher proportion of the men in Dhaka and Raipur visited any health facilities in the last three months in end- line compared to baseline. Such changes were not observed in Nabiganj. In the rural areas, government satellite clinics and Health and Family Welfare Centres were most commonly visited while in the urban areas, it was NGO satellite or static clinics.

Table 4- Utilization of the health facility by married men

	Dhaka		Raipur		Nabigonj	
Proportion of men visited health facility in the last three months	Baseline (n=1,063)	Endline (n=1,217)	Baseline (n=1,053)	Endline (n=1,114)	Baseline (n=1,080)	Endline (n=1,009)
	19.7	28.3**	14.1	24.2**	28.9	28.4
Types of health facilities visited	Baseline (n=209)	Endline (n=345)	Baseline (n=148)	Endline (n=270)	Baseline (n=312)	Endline (n=287)
NGO satellite clinic	6.7	6.7	1.4	0.4	0.6	0.3
Government satellite clinic	1.4		8.1	8.5	1.6	8.7
H&FWC			20.3	12.2	7.1	11.5*
NGO static clinic	14.8	21.2*	0.7	1.1	6.1	2.4*
Upazila Health Complex			27	11.1**	10.3	11.1
RD/UD	2.8	1.2	0.7	1.9	0.6	
Government hospital	5.3	3.8	3.4	3.3	3.5	2.1
Private clinic	17.7	9.0*	10.8	14.4	39.4	30.0*
EPI centre	10.5	0.9**	17.6	5.2**	1.3	2.8
Pharmacy	44	64.3**	12.8	57.4**	26	38.7*
Homeopathic	1	0.3	0	1.5	5.1	2.4

*Multiple responses are considered; *P<.01, **p<.001;*
H&FWC-Health and Family Welfare Centre, Upazila Health Complex-Sub-District Health Centre, RD/UD-Rural/Urban dispensary, EPI centre-Immunization centre

Table 5- Perceived measures of prevention of sexually transmitted diseases

Perceived means of protection	Dhaka		Raipur		Nabigonj	
	Baseline (n=653)	Endline (n=1,090)	Baseline (n=884)	Endline (n=934)	Baseline (n=523)	Endline (n=598)
Abstinence of sexual activities between husband and wife	6.4	13.8**	0.9	8.7**	28.9	17.6**
Using condom during sex	4	5.7	2	7.5**	7.8	8
Avoiding use of unsafe blood	1.1	3.3	0.9	2	1.1	5.2
Avoiding use of infected needle/syringe	0.8	12.4**	0.5	4.3**	0.6	9.2
Avoiding sex with sex workers	29.4	67.1**	24.8	44.6**	16.3	67.9**
Avoiding sex with multiple partners	18.2	38.3**	24.2	25.7	9.4	32.1**
Being clean/using soap	2.3	5.7*	8.6	7.9	9.4	6.2
Washing genital organ after sex	0	0.1	6.2	0.1	0	0
Others	2.3	0.1	3.9	0.4**	1.4	0.2
Do not know	50.2	17.2	45	41.5	39.8	15.4**

*Multiple responses are considered; *P<.01, **p<.001*

Men's Awareness on Prevention of Sexually Transmitted Diseases, Reported Problems, and Action Taken

Two commonly-cited protective measures for prevention of HIV were 'avoiding sex with commercial sex partners' and 'avoiding sex with multiple partners' [Table-5]. Irrespective of the study areas, higher proportions of men in endline compared to baseline thought that avoiding sex with sex workers would prevent STIs. Similarly, in Dhaka and Nabiganj, avoiding sex with multiple partners would prevent STIs while such changes were not observed in Raipur. Around one percent of the surveyed males at baseline reported about STI symptoms in last year. At endline reporting on STI problems were higher (32-55%). Irrespective of the study sites, a higher proportion of the men in endline compared to baseline consulted qualified doctors either in private or public facilities for STI symptoms [Table-6].

Table 6- Types of persons consulted last reported STI symptoms

Types of persons consulted	Dhaka		Raipur		Nabigonj	
	Baseline (n=96)	Endline (n=47)	Baseline (n=54)	Endline (n=135)	Baseline (n=96)	Endline (n=82)
Private doctors	20.8	25.5	20.4	34.8*	21.9	40.2*
Doctors in public hospital	5.2	10.6	5.6	7.4	7.3	9.8
Pharmacists	21.9	23.4	18.5	20	11.5	18.3
Kabiraj	4.2	6.4	13	6.7	8.3	4.9
Village doctors	0	6.4	16.7	11.1	15.6	4.9*
Homeopath doctor	2.1	4.3	3.7	3.7	4.2	3.7
Peer, fakir	3.1	6.4	0	0	3.1	4.9
Canvassers	4.2	6.4	1.9	3.7	0	0
Nothing was done	40.6	21.3*	33.3	18.5	32.3	28

Discussion

The present evaluation following the DBRHCP was to assess changes in selected indicators regarding men's knowledge and health care utilization. The study reported positive changes in several important indicators at the end of the project period. It is expected that the study results would assist the program managers addressing the needs of males and to bring about relevant modifications in the existing government programs for men's increased participation leading to improved program performance.

The present study reported that over the project period, significantly higher proportions of males came to know about maternal life-threatening problems such as pre-eclampsia, placental tear, and mal-presentation. It is expected that males improved knowledge would lead to better care for women in such obstetric emergencies as they play the role of 'gate keepers' for health care seeking of females. Previous studies suggested that including husbands in reproductive health interventions, particularly in antenatal care counseling, significantly increases the frequencies of ante natal care visits (ANC) and their knowledge on pregnancy care [14, 25]. In their paper, Narang and Singhal [4] assessed men's awareness and attitude as partners in maternal health; they reported that the men who did not accompany their spouses to receive antenatal visits thought that it was a "women's affair", and could not perceive themselves as part of pregnancy care process. On the other hand, men who accompanied their spouses felt that they were not welcomed or accommodated in the system as couple consultation was absent in the system. This study emphasized the need of accommodative systems for males to accompany their wives seeking care from facilities. Joint consultation and informed decision making that provides optimum importance to males, should be promoted for improved male involvement. Although not addressed in the present study, husbands' involvement in birth preparedness and pregnancy complication readiness are also found to be very crucial for maternal emergency obstetric care on time [26]. Another study done by 'brac'(Bangladesh Rural Advancement Committee) on male involvement and social mobilization improving awareness of maternal, neonatal and child health care found significant improvement following the interventions [27].Thus, the most important goal is to raise awareness among men on pregnancy and delivery related care and make them sensitive about possible emergency conditions so that they can act as catalysts in the entire process of care seeking by the women.

Historically productive involvement of men is absent in the family planning programs in Bangladesh, as a result, women have to shoulder the major responsibility for contraception [11]. A study in Bangladesh reported that discussion between husband and wife on family planning has the most single significant effect on both current contraceptive use and modern method preference [28]. Another study conducted in Bangladesh on men's awareness regarding contraceptive methods concluded that surveyed men who had low degree of awareness were not properly informed of wide range of contraceptive options [29]. Age, education, place of residence, number of living children and being consulted for family planning were identified as key factors determining contraceptive knowledge and use among married men in Nigeria [30]. Often myths and fallacies about male contraception act as barriers of using male methods. For instance, a study done in Pakistan found a common perception that ' condoms and vasectomy cause impotence in males', condoms were thought to cause infection, backache and headache while vasectomy is meant for prisoners only [31]. Such fallacies and myths should be addressed adequately in the family planning programs for increased uptake of male methods. The present study reported that following the demand based interventions, men's knowledge improved on male methods, semi-permanent methods, and permanent methods. It is expected that improved knowledge of men on contraceptive methods would assist them to take shared responsibility in family planning issues.

Recently males' sexual and reproductive health has received particular attention around the globe including Bangladesh due to the current epidemic situation of sexually transmitted infections as well as the impending threats of AIDS [32-33]. Low self risk perception has been reported by many males although they are engaged in risky sexual behavior such as buying sex from sex workers or having multiple sex partners [34, 35]. The study done in Nigeria found that over 80% of the study participants were engaged in risky sexual practices while 50% of these males perceived themselves not to be at risk of contracting HIV infection; significantly more participants with multiple sexual partners having present or past history of STIs, perceived themselves not to be at risk of HIV infection [35]. Another study done in Bangladesh among males who bought sex from sex workers found that low educational attainments and having more than 3 non marital sexual partners in last month were more likely to have STI symptoms [36]. Another study conducted in Bangladesh reported high prevalence of STIs among males who bought sex from sex workers [37]. Despite having the information 'modern medicine is required for treatment of STIs', many males in a tribal community in India resorted to traditional healers or utilized home remedies [38]. A study done in Zimbabwe found that men often interpreted sexual health in the context of either natural for instance psychological stresses or supernatural causes like religious spirits and witchcrafts which ultimately influenced in their choice of treatment and health service providers [39]. The present study reported that at the end of the project there was improved knowledge of males on mode of prevention of STI. The study also observed improved utilization of care qualified persons by surveyed males for both general problems and reported problems on STI.

The present study revisited the existing behavioral change communication (BCC) materials used in health facilities and modified these to address specific needs males and to make improved communication with males. There should be increased communication between providers and males who accompany their wives for obtaining family planning or maternal health care services. Joint consultation to husband and wife including couple counseling for family planning and maternal health care are found to be important to involve males in informed choice and decision making. Women attending health facilities should be given BCC materials to carry at home to share these materials with their spouses. A review on interventions targeted to improve males' involvement, suggested that media approach may be an effective approach to involve males in health promotion [40]. Some innovative approaches should be attempted providing information to males. Street drama and folk songs at market places focused on health promotion of both males and females are found to be good ways to reach males. Digitization of information targeted to males can be tried through future interventions.

Conclusion

The study observed positive changes in selected indicators among males at the end of the project period and emphasized the need of more accommodative health care delivery systems for males. It is

crucial to explore effective ways to reach males, for instance, provision of health messages through mobile phones with a special focus on STI problems should be tried.

Conflict of Interest: None

Authors' Contribution

RG contributed in designing the concept and study, conducted analysis and, developed manuscript. HK was involved in field implementation of the study and in concept development. NCS was involved in data management and analysis. MJ contributed in data quality control, monitoring and data compilation.

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