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Factors associated with partner referral among patients with sexually transmitted infections in Bangladesh

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Abstract

Understanding the demographic, behavioural and psychosocial factors associated with partner referral for patients with sexually transmitted infections (STIs) is important for designing appropriate intervention strategies. A survey was conducted among STI clients in three government and three non-governmental organization-operated clinics in Dhaka and Chittagong city in Bangladesh. Demographic and psychosocial information was collected using a questionnaire guided by the Attitude-Social Influence-Self Efficacy model. Partner referral data were collected by verification of referral cards when partners appeared at the clinics within one month of interviewing the STI clients. Of the 1339 clients interviewed, 81% accepted partner referral cards but only 32% actually referred their partners; 37% of these referrals were done by clients randomly assigned to a single counselling session vs. 27% by clients not assigned to a counselling session ($p < 0.0001$). Among psychosocial factors, partner referral intention was best predicted by attitudes and perceived social norms of the STI clients. Actual partner referral was significantly associated with intention to refer partner and attitudes of the index clients. Married clients were significantly more likely to refer their partners, and clients with low income were less likely to refer partners. Intervention programmes must address psychosocial and socio-economic issues to improve partner referral for STIs in Bangladesh.

Keywords

Sexually transmitted infections; Partner referral; Psychosocial factors; Bangladesh; Attitudes

Introduction

Partner referral by patients with sexually transmitted infections (STIs) is an important public health intervention in STI management (Clark et al., 2007; Oxman et al., 1994). Partner referral is important to (1) inform partners at risk about their possible exposure to the infection, (2) prevent re-infection of the index patients and interrupt the chain of transmission, and (3) reduce the number of asymptomatic carriers in a population (Rothenberg, 2002). Partner referral could be accomplished in one of three ways: through

the STI patients themselves, by healthcare providers, or by joint responsibility of both the patients and the providers (Macke, Hennessy, McFarlane, & Bliss, 1998; Rothenberg, 2002).

In general, HIV prevalence is very low in Bangladesh, with less than 1% prevalence rate among the most-at-risk populations except for the injecting drug users group, where prevalence was reported to be 7% in one surveillance site (Azim et al., 2008). A study among female sex workers reported gonorrhoea, chlamydial infection, trichomoniasis prevalence rates of 35.8%, 43.5%, and 4.3%, respectively (Nessa et al., 2004). STI management services in Bangladesh differ by type of service providers and settings. Most primary health care centres, and non-government organization (NGO) clinics follow the World Health Organization's (WHO) recommended syndromic management protocol, but general physicians and secondary or tertiary level health care providers generally follow the management protocol in medical textbooks, with or without support from laboratory investigations (National AIDS/STD Programme, 2006). Information on partner referral and management practices in Bangladesh is very limited. Service delivery data from primary health care clinics in rural Bangladesh have indicated that service providers only rarely recommend partner referral to STI clients (Ahmed et al., 1999). There is no published information on patients' perspectives of partner referral, particularly on their knowledge, attitudes, social norms, and perceived barriers. Understanding these factors is important for designing appropriate intervention strategies to promote partner referral (Joffe et al., 1992; Potterat, Meheus, & Galloway, 1991).

The Attitude-Social Influence-Self Efficacy (ASE) model (De Vries, Dijkstra, & Kuhlman, 1988) has been used to explain the relationship between psychosocial factors and various types of health-related behaviour, such as partner referral for STI, smoking cessation, and breast feeding (Bolman, de Vries, & Mesters, 2002; Kools, Thijs, & de Vries, 2005; Nuwaha, Faxelid, Wabwire-Mangen, Eriksson, & Hojer, 2001). According to the ASE model, behaviour (i.e., referral of one's sexual partner) is best predicted by intention, which in turn is influenced by attitudes, social influences, and self-efficacy (see Fig. 1). Among the psychosocial factors, the attitude of a person towards a given behaviour refers to the extent to which a person has a favourable or unfavourable evaluation of the behaviour. The social norm deals with the perceived social influence on whether to perform or not perform the given behaviour. The outcome beliefs refer to the perceived likelihood that performing the behaviour will lead to certain consequences; this includes beliefs about positive outcomes and beliefs about negative outcomes. Self-efficacy refers to the judgment of how confident one is about executing actions required to deal with challenging situations (Bandura, 1982; Nuwaha et al., 2001).

Several demographic, behavioural and psychosocial factors have been reported to be associated with partner referral among STI patients (Clark et al., 2007; Hennessy, Williams, Mercier, & Malotte, 2002; Rothenberg, 2002). Among demographic factors, sex of index patients and type of sexual partnership were found to be closely associated with partner referral outcomes; women referred partners more than men did, and steady/spousal partners were more likely to be referred than casual partners (Faxelid, Tembo, Ndulo, & Krantz, 1996; Katz, Danos, Quinn, Caine, & Jones, 1988; Steen, Soliman, Bucyana, & Dallabetta, 1996; van de Laar, Termorshuizen, & van den Hoek, 1997). Intention to perform a future behaviour (e.g., sexual partner referral) is expected to be determined by psychosocial factors, namely attitudes, perceived social norms and self-efficacy (Bauman, Sallis, Dziewaltowski, & Owen, 2002; Kools et al., 2005; Markham et al., 2004). One study from Uganda found that intention to refer a partner was strongly associated with actual partner referral and was influenced by attitude, social norm and self-efficacy related to partner referral (Nuwaha, Faxelid, Neema, Eriksson, & Hojer, 2000). Intention has been found to be associated with other behaviours such as use of condoms (Gillmore, Morrison, Lowery, &

Baker, 1994) and smoking cessation (Bolman et al., 2002) but not with initiation of breast feeding (Goksen, 2002).

Our study aimed to understand the relationship of partners' referral intention with their actual referral behaviour among patients diagnosed with STIs in Dhaka, Bangladesh. We tested two hypotheses: (1) Psychosocial factors including attitudes, social norms, outcome beliefs, and self-efficacy relating to partner referral are associated with the intention of partner referral among index STI clients; and (2) Intentions of index STI patients to notify their sexual partners are associated with actual partner referral behaviour after adjusting for other psychosocial and socio-demographic factors.

Materials and methods

Study cohort and participants

The study was conducted between March 2007 and December 2007 in three government and three NGO operated clinics in Dhaka and Chittagong districts in Bangladesh. The study clinics were selected based on their higher than average daily volume of STI patients as determined during a formative study. In each clinic, patients diagnosed with STIs (i.e., index case) of age 18 years and older who had engaged in sexual intercourse in the last three months were invited to participate. Diagnosis of STIs was based on WHO recommended syndromic approach which was locally adapted in Bangladesh (National AIDS/STD Programme, 2006). We did not know the HIV status of the study patients because none of the study clinics had voluntary counselling and testing services available. After assessment of each index case, a clinic nurse or doctor explained the study objectives and invited the eligible patients (those with syndromic assessments suggestive of STIs) to participate in the study. Partners of an already recruited patient were not included in the study as a participant because of possible repetition of information from the same partnership. Written consent was received from each participating index case. The study protocol was approved by the ethical review committee of International Centre for Diarrhoeal Diseases Research, Bangladesh (ICDDR,B).

Study design

This study was nested within a randomized trial that investigated the role of single session counselling on partner referral outcome. For index cases assigned to the counselling arm, a same-sex counsellor conducted an individualized session lasting approximately 10 minutes. Counsellors were specifically trained to deliver partner referral counselling focusing on these five issues related to STI prevention and control: (1) risk of re-infection if partners are not treated concurrently; (2) risk of developing complications; (3) risk of further spread of infection in the community; (4) the asymptomatic nature of infection; and (5) social obligations and personal coping with an STI. Patients in the standard care group received the existing services in the respective clinics, but no targeted and standardized counselling services were provided. Existing services in the clinics included clinical consultation along with a prescription of medication but no partner referral counselling per se. Both the counselling and non-counselling group of clients in the public clinics received free medication, and in the NGO clinics they received subsidized fee medications. Both the counselling and non-counselling group of clients received standard, pre-tested anonymous partner referral cards with a short briefing by the interviewers that index clients needed to hand over the cards to their partners to bring to the respective clinics for clinical evaluation of their STIs status.

Data collection and variable definitions

A questionnaire survey was conducted to collect data on demographic characteristics, sexual behaviours, and psychosocial information related to partner referral from the STI clients recruited in the study. Primary partners were defined as spousal/steady partner, and non-primary partners as non-spousal/non-steady partners with whom the index clients had sexual relationships within the past three months.

The questionnaire was administered by a same-sex trained interviewer in an isolated and private place in the clinic before randomisation and before counselling was provided to the intervention group. Interviewers created initial rapport with the index cases before starting interviews and provided assurance of confidentiality of their information. Prior to finalizing the study questionnaire, a public health researcher translated the questionnaire into the local language, and another back-translated it. Special attention was given in wording the questionnaire by consulting local terminologies used in earlier related studies in Bangladesh. Preliminary testing of the questionnaire was done with 22 respondents in two clinics not selected for the final study to determine its acceptability and clarity. In addition, two informal group discussions were conducted, one each for women and men, in two pilot clinics' waiting room areas to get feedback on the questionnaire.

Attitude towards referring sexual partner

Three items were used to measure participants' attitudes; each of them began with the stem 'Referring my partner within the next one month would be ...'. Responses were given in terms of bipolar evaluations: good/bad, responsible/irresponsible, and possible/impossible. Responses for each of the three items had four options ranging from very good [1] to very bad [4], very responsible [1] to very irresponsible [4], and very possible [1] to very impossible [4]. The three items were summed and used as the index patient's overall attitudes towards referring his or her partners (Cronbach's $\alpha = 0.67$).

Social norm

Perceived social norm was measured by two items. 'What do you think is the opinion of people who are important to you that you.... refer sexual partner to the clinic', and 'What do you think is the opinion of people whose opinion you respect in the society that you refer sexual partner to the clinic.' The possible responses were recorded as definitely should [1], should [2], should not [3], and definitely should not [4]. (Cronbach's $\alpha = 0.97$).

Outcome beliefs

We measured 5 beliefs considered favourable (pros) towards the outcomes and 6 beliefs considered unfavourable (cons). The response options were very likely [1] to very unlikely [4]. The pro items were: 'referral would help cure the disease', 'help prevent the disease from being transmitted to the children', 'a step towards not transmitting the infection to other people', 'prevent complications of the disease', and 'show that I care about his/her health'. The con items were: 'indicate that I am unfaithful to her/him', 'lead the partner going to other women/men', 'show that I am at risk of AIDS', 'lead to quarrelling', 'lead to separation' and 'lead to divorce'. The scores of the pro and con items were summed separately as positive beliefs and negative beliefs (for positive beliefs, Cronbach's $\alpha = 0.84$) and (for negative beliefs, Cronbach's $\alpha = 0.86$).

Self-efficacy

Patients reported the likelihood of referring their partners in five situations: if there are words to tell the partner, if there is a referral card for inviting partner, if there is free treatment, if a health care worker talks to the partner, if there is no plan to have sex with the

partner again. Response options were very likely [1] to very unlikely [4]. The sum of these 5 ratings formed the self-efficacy scale (Cronbach's $\alpha = 0.89$).

Data were also collected from index cases on socio-demographic characteristics and sexual behaviours. An index client may have had more than one partner to refer. We interviewed the index cases more than once to get their intention, attitude, social norm, outcome beliefs and self-efficacy related to partner referral separately for the primary partner in the first interview and non-primary partners in subsequent interviews. Here we analyzed data from the first interviews which refer to primary partners of index cases. We did not have intention and ASE data related to referral of non-primary partners for all of the index clients reported having had such partners to refer.

Study outcomes

This study explored two outcome variables related to partner referral for STI management. *Intention to refer partner.* Intention of partner referral was collected during the interview of index clients with the question: 'How likely are you to refer your sexual partner to the clinic within the next one month?' Responses were recorded as: very likely [1], likely [2], unlikely [3], and very unlikely [4]. Partner referral within one month of interview of index STI patients. Partner referral outcome was defined by the proportion of index clients who had at least one partner referred to the study clinics within one month of the interview. Partner referral data were collected through verification of referral cards when partners appeared at the clinics. Out of 1339 index cases included in this study, 1090 of them accepted 1223 referral cards; card acceptance rate was 1.12 per index patients. Out of 430 index cases who actually referred their partners, 2 partners were referred by 6 index clients each and 3 partners were referred by one index client. However, we do not know which type of partner (primary or non-primary) actually came to the clinics.

Data analysis

Demographic characteristics and sexual behaviours (e.g., number of sex partners in the last three months before interview, commercial partners) were compared by actual partner referral outcome. Chi-square test was used to compare categorical values. Bivariate analysis was conducted to look at the correlates of intention followed by linear regression analysis. We included demographic, sexual behaviour and psychosocial variables in the linear regression models. Actual partner referral was a binary outcome, and we decided to estimate prevalence ratios instead of odds ratios so derived from the logistic regression analyses because partner referral was not a rare event in this study. By assuming a constant follow-up period (we set 1 for all), the conditional hazard ratio estimated by the Cox regression model can be adapted to estimate prevalence ratios for cross-sectional data (Breslow, 1974). We only included the significant variables from the bivariate models in the multivariate model to limit the number of variables and to avoid unstable estimates. We considered p values ≤ 0.05 as statistically significant. Data analysis was conducted using SPSS® ver.15 software (SPSS 15, Chicago, IL).

Results

All of the 1416 clients diagnosed with symptoms suggesting STIs and approached to participate in the study agreed, but 77 of them were found ineligible. Slightly over half (53%) of these 1339 index STI clients were recruited from the NGO clinics, 55% were female and 74% were married at the time (Table 1). One third of the clients had less than \$100 per month income, and 18% of them were illiterate. Thirty-nine percent of the clients had engaged in sex with a commercial sex partner in last three month, and 22% had had more than one sex partner during the same period.

Of all the clients, 81% accepted taking partner referral cards and 32% of the total referred their partners. Referral card acceptance rates (84% vs. 78%; $p < 0.05$) and actual partner referral rates (37% vs. 27%; $p < 0.0001$) were significantly higher among index clients in the counselling group compared to clients in the non-counselling group. Actual partner referral rates were significantly higher among women, those who were married, and those who attended NGO clinics (Table 1). However, partner referral rates were lower among low income clients, among those who had more than one sex partner, and those who reported having commercial partners during the past three months. Of the 1339 index clients interviewed, 961 (72%) had positive intention of partner referral. Among those who had positive intention, 96% accepted taking referral cards but 43% actually referred their partners. Among those who had negative intention of partner referral, 43% accepted taking referral cards but only 5% referred their partners.

Means and standard deviation of mean of the scaled variables are presented in Table 2. In general, index STI clients who referred their clients had positive intention, attitude, social norms, and self-efficacy compared to the ones who did not referred their partners. Low scores in these scaled items refer to positive intentions, attitudes, norms, and self-efficacy. Except for positive beliefs, mean for all of these scaled variables were statistically significant.

Factors associated with intention of partner referral

In bivariate analysis, attitudes, social norms and negative behavioural beliefs were found to be the major psychosocial correlates of partner referral intention (Table 3). Among them, attitude itself explained 51% of the variance followed by social norms (30%) and negative behavioural beliefs (28%). Among the demographic factors, marital status explained 33% of the variance and gender explained 29% of the variance. Among the sexual behaviours, having commercial sex partners explained 33% variance of partner referral intention.

In the multivariate model, all variables, including the demographic, sexual behaviour and psychosocial factors, explained 69% of the variance of partner referral intention. Relative contribution of the variables as observed from the standardized β weights in the multivariate model indicated that among the psychosocial factors, attitude was the important correlate followed by negative behavioural belief and social norms.

Factors associated with actual partner referral

In the bivariate analysis, actual partner referral was significantly more likely among female clients, those who were married, those who attended NGO clinics, and those who attended the counselling session on partner referral, but was less likely among clients with low income, who had had commercial sex partners, and had had more than one sex partner (Table 4). Among psychosocial factors, intention, attitude, social norms, and negative behavioural beliefs were significantly associated with actual partner referral. In the multivariate model, partner referral was found to be significantly more likely for married clients and the group who attended the partner referral counselling but less likely for clients with income less than Tk.5000 per month (at the time of the study, 1US\$ was worth approximately 68.00 Taka). Among the psychosocial factors, intention of the index clients and their attitudes were significantly positively associated with actual partner referral.

Discussion

These findings indicate that a single counselling session influenced STI clients taking a partner referral card and ensuring their partner came to the clinic. Findings also indicate that the intention to refer primary partners was associated with sexual partners, attitudes, and

behavioural beliefs. Actual referral behaviour was predicted best by marital status, income, intentions and attitudes. Partner referral intentions were found to be positively associated with actual partner referral behaviour though that was because those who did not intend were unlikely to refer their partners (5%) while among those who did intend less than half referred their partner (43%). Consequently, positive intention is not a good proxy for behaviour.

Factors associated with intention to refer partner

According to our findings, intention is the first step to partner referral. Intention in turn was expected to be associated with attitudes, social norms and self-efficacy (De Vries, Mudde, Dijkstra, & Willemsen, 1998). We found attitudes and perceived behavioural beliefs were significantly associated with an STI client's intention to refer primary partners. Those who had positive attitudes toward referral and overcame common worries about potential negative outcomes such as stigma and loss of support were more likely to intend partner referral. Self-efficacy and social norms are important psychosocial constructs in many behavioural models, but we did not find any significant association with intention of partner referral when demographic and ASE variables were controlled for. Self-efficacy and social norms were therefore not important in partner referral here.

Among the demographic variables, marital status was significantly associated with intention of partner referral in absence of the psychosocial variables in the model. Marital status is confounded with gender in that the women in this study were mostly married (97%), having spousal partners, whereas men were mostly unmarried (60%), typically having non-steady partners. This finding is consistent with other studies, which reported that a higher proportion of female index cases compared to male index cases expressed their willingness to notify steady or spousal partners (Clark et al., 2007; Sahasrabuddhe et al., 2002). Women and married individuals may be motivated through interdependency to help their partners remain healthy (Diaz-Olavarrieta et al., 2007; Moyo et al., 2002; Nuwaha et al., 2000).

Factors associated with partner referral

The 32% partner referral rates in our study were comparable with studies reporting 23% partner referral in China (Shumin et al., 2004) and 25% in Uganda (Kamali et al., 2003). Attitudes toward referral and intention to refer were positively associated with actual partner referral behaviour; but contrary to the prediction of ASE model, intention did not completely mediate the influence of other demographic and psychosocial variables. For example, it did not mediate the influence of lower income because income was not strongly associated with intention to refer partner. Because of free or subsidized treatment, STI patients may not have considered income as a barrier. However, lower income STI clients may have been less likely to refer their partner because of transportation costs, lost-opportunity costs of bringing the partners to the clinic, or other reasons.

Although our intention and psychosocial data refer to the primary partners of index cases, in our actual partner referral we have not collected data on which type of partner actually came to the clinics. However, we defined our partner referral outcome as the proportion of index cases who referred at least one partner; thus the outcome was not dependent upon type of partners they referred. Actual partner referral rate was significantly higher among the clients who were assigned to the counselling session concerned with partner referral. But intention and other psychosocial variables were not influenced by the counselling session because we interviewed the clients before they attended that counselling session.

The strength of the study is in our use of an objective measure to document partner referral outcome, namely the partner referral cards. Also we used a theory to inform our selection of

variables, and found that attitudes were the strongest predictor of referral behaviour, but that other variables were less predictive than marital status and income. A group of index clients did not accept partner referral cards thus limiting our ability to determine partner referral outcome for them. We do not have a complete explanation for those who took a card but did not ensure that their partner came to the clinic. They may have decided not to give their partner the referral card, the partner may have chosen not to come to the clinic, or may have gone to another clinic.

This study is the first in Bangladesh to examine factors associated with partner referral intention and actual referral among STI patients. Partner referral is low among STI cases, especially among male index clients. Counselling to encourage partner referral should focus on facilitators such as marital status and social responsibility, as well as barriers such as income and beliefs about negative consequences. If STI control is effective in reducing HIV transmission in nascent epidemic circumstances (Grosskurth, Gray, Hayes, Mabey, & Wawer, 2000; Mayaud, Ka-Gina, & Grosskurth, 1998), stronger STI management programs with adequate partner referral initiatives could be helpful in preventing future HIV spread in Bangladesh.

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Fig. 1. Attitude-Social Influence-Self-Efficacy model. Source: Adapted from De Vries and Mudde. *Psychology & Health* 1998; 13:369–385.

Table 1

Socio-demographic characteristics and sexual behaviours of the index cases with sexually transmitted infections by partner referral outcome

Characteristics	Total n = 1339 (%)	Actual partner referral		P value
		Yes n = 430 (%)	No n = 909 (%)	
Sex				
Female	741 (55.31)	321 (43.31)	420 (56.72)	<0.001
Male	598 (44.73)	109 (18.24)	489 (81.81)	
Age				
18yrs–25yrs	585 (43.71)	149 (25.51)	436 (74.54)	<0.001
26yrs & above	754 (56.33)	281 (37.32)	473 (62.71)	
Marital status				
Currently married	986 (73.62)	396 (40.21)	590 (59.82)	<0.001
Currently single	353 (26.41)	34 (9.64)	319 (90.41)	
Education				
No or primary	236 (17.62)	57 (24.23)	179 (75.83)	0.016
Secondary	792 (59.13)	268 (33.82)	524 (66.21)	
Higher Secondary or up	311 (23.24)	105 (33.84)	206 (66.24)	
Income ^a				
≤Tk.5000	451 (33.72)	95 (21.11)	356 (78.91)	<0.001
Tk.5001–Tk.10,000	489 (36.54)	139 (28.42)	350 (71.63)	
Tk.10,001 and higher	399 (29.82)	196 (49.14)	203 (50.91)	
Type of clinic				
Government	628 (46.93)	123 (19.61)	505 (80.43)	<0.001
Non-governmental	711 (53.11)	307 (43.21)	404 (56.82)	
>1 sex partner in last 3 months				
Yes	293 (21.91)	54 (18.41)	239 (81.61)	<0.001
No	1046 (78.12)	376 (35.92)	670 (64.13)	
Commercial partners in last 3 months				
Yes	516 (38.53)	86 (16.73)	430 (83.34)	<0.001
No	823 (61.51)	344 (41.82)	479 (58.21)	
Symptoms presented				

Characteristics	Total <i>n</i> = 1339 (%)	Actual partner referral		<i>P</i> value
		Yes <i>n</i> = 430 (%)	No <i>n</i> = 909 (%)	
Genital itching	646 (48.22)	213 (33.01)	433 (67.01)	0.51
Vaginal discharge	680 (50.84)	305 (44.92)	375 (55.14)	0.52
Urethral discharge	450 (33.42)	83 (18.43)	367 (81.63)	0.001
Genital ulcer	351 (26.2)	121 (34.53)	230 (65.52)	0.54
Lower abdominal pain	456 (34.13)	213 (46.72)	243 (53.31)	0.64
Others	104 (7.81)	33 (31.71)	71 (68.33)	0.06

^a At the time of the study, 1 US \$ equalled about 68.00 Taka.

Table 2

Mean (SD) of Psychosocial characteristics of the index cases with sexually transmitted infections by partner referral outcome

Variables ^a	Total	Actual partner referral		
		Yes	No	<i>P</i> value
Intention	2.93 (0.97)	2.71 (1.03)	3.39 (0.61)	0.0001
Attitude	3.51 (0.50)	3.41 (0.53)	3.72 (0.34)	0.0001
Social Norm	2.89 (1.01)	2.75 (1.10)	3.17 (0.72)	0.0001
Positive beliefs	3.49 (0.48)	3.48 (0.50)	3.52 (0.44)	0.096
Negative beliefs	1.97 (0.53)	2.05 (0.57)	1.80 (0.40)	0.0001
Self-efficacy	3.63 (0.52)	3.61 (0.58)	3.67 (0.38)	0.045

^aVariables had a theoretic range of 1 (support referral) to 4 (unsupportive of referral).

Table 3

Linear regression analyses on predictors of intention to refer partner

Variables	Bivariate models	Multivariate model Adjusted $R^2 = 0.69$	
	R^2	Standardized β	95% CI
Gender	0.29	0.05	-0.08, 0.19
Marital Status	0.33	0.17*	0.07, 0.28
Income	0.04	-0.05*	-0.09, -0.01
Type of clinic	0.28	-0.27*	-0.38, 0.16
Commercial partner in last 3 month	0.33	-0.49*	-0.62, -0.37
>1 partners in last 3 month	0.11	0.16*	0.07, -0.26
Attitude	0.51	0.89*	0.81, 0.98
Social norm	0.30	0.08	-0.02, 0.14
Positive beliefs	0.14	0.07	-0.07, 0.12
Negative beliefs	0.28	-0.29*	-0.36, -0.22
Self efficacy	0.05	0.03	-0.04, 0.09

*
 $p < 0.05$.

Table 4

Univariate and multivariate analyses of predictors of actual partner referral by index cases with sexually transmitted infections

Variables	Unadjusted		Adjusted ^a	
	PR ^b	95% CI	PR ^b	95% CI
Sex:				
Female	2.42	1.92, 2.91	1.20	0.76, 1.87
Male	1		1	
Marital Status:				
Married	4.21	2.94, 5.92	2.83	1.80, 4.46
Unmarried	1		1	
Income:				
Tk.5000 or less	0.43	0.34, 0.55	0.53	0.41, 0.69
Tk.5000–10000	0.58	0.47, 0.72	0.72	0.58, 0.90
>Tk. 10000 (ref)	1		1	
Clinics type:				
NGO	2.20	1.79, 2.72	1.08	0.75, 1.55
Government	1		1	
Commercial partner in last 3 month:				
Yes	0.40	0.31, 0.50	0.81	0.49, 1.31
No	1		1	
>1 partners in last 3 month:				
Yes	0.51	0.38, 0.68	1.34	0.88, 2.07
No	1		1	
Intention	1.89	1.66, 2.15	1.27	1.1, 1.50
Attitude	3.15	2.43, 4.08	1.74	1.21, 2.50
Social norms	1.36	1.22, 1.51	1.40	0.9, 2.01
Positive beliefs	1.15	0.94, 1.40	–	
Negative beliefs	0.52	0.43, 0.63	0.91	0.70, 1.17
Self efficacy	1.18	0.97, 1.44	–	
Intervention				
Counselling group	1.31	1.1, 1.6	1.27	1.1, 1.54
				0.01

Variables	Unadjusted		Adjusted ^a		P value
	PR ^b	95% CI	PR ^b	95% CI	
Non-counselling group	1		1		

^a Adjusted for variables in the multivariate model.

^b PR = Prevalence ratio.