Published in final edited form as:

Sex Transm Infect. 2011 February ; 87(1): 46–51. doi:10.1136/sti.2009.040998.

Effect of single session counselling on partner referral for sexually transmitted infections management in Bangladesh

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Abstract

Objectives—This study evaluated the role of single session counselling on partner referral among index cases diagnosed as having sexually transmitted infections (STIs) in Bangladesh.

Methods—A quasirandomised trial was conducted in 1339 index cases with symptomatic STIs in 3 public and 3 non-government organisation operated clinics.

Results—Out of 1339 index cases, partner referral was achieved by 37% in the counselling group and 27% in the non-counselling group. Index cases in the counselling group and non-counselling group were similar in terms of condom use rates, STI symptoms and duration of disease. A quarter of the index cases reported having more than one sex partner in last 3 months, and 39% reported having commercial sex partners. Only 8% of the index cases reported using condoms during their last sex act. Partner referral rates were higher among index clients with higher age, higher income, those who attended NGO clinics, those who had only one partner and among those who had no commercial partners, but counselling had significantly positive impact in all of these subgroups. In multivariate analysis, the probability of partner referral was 1.3 times higher among index cases in the counselling group (prevalence ratio 1.3; 95% CI 1.1 to 1.6) as compared to index cases in the non-counselling group.

Conclusions—Patient-oriented single session counselling was found to have a modest but significant effect in increasing partner referral for STIs in Bangladesh, greater emphasis should be

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Contributors NA contributed to study design, implementation, data analysis and drafting the manuscript. SK and DM contributed to designing, data analysis and editing. MS contributed to the research idea and interpretation of findings. PKS and SHV contributed to study design, data interpretation and editing of the manuscript.

Competing interests None.

Patient consent Obtained.

Ethics approval The study protocol was approved by the Institutional Review Board at the University of Alabama at Birmingham, and by the Research Review Committee and Ethical Review Committee of International Center for Diarrhoeal Disease Research, Bangladesh.

Provenance and peer review Not commissioned; externally peer reviewed.

placed on examining further development and dissemination of partner referral counselling in STI care facilities.

INTRODUCTION

Partner referral (PR) is an important component of sexually transmitted infection (STI) management and control programmes,^{1–3} which can result in earlier treatment for partners of patients with STIs, prevent reinfection and break the chain of disease transmission.^{4–6} Among the PR strategies, the WHO recommends patient-oriented referral as a first step for less developed countries, as opposed to provider-oriented referral, because it is easier to implement without additional resource allocation to the already overwhelmed healthcare system.^{7,8} In patient-oriented referral, index cases take the lead to inform their partner(s) about their disease status and refer them to STI care.

In practice, however, PR is rarely used in low-income countries where the vast majority of patients with STIs receive treatment without getting adequate counselling and advice on PR issues.^{9,10} Among the various strategies, individualised counselling to patients with STIs by health educators was found to be effective.^{11,12} A Zambian study reported that individualised counselling increased the mean number of partners treated as compared to standard STI management, relying on practicing clinicians to discuss PR.¹² Moreover, patient-oriented counselling can easily be integrated into existing public or non-governmental organisation (NGO)-based clinics as compared to provider-based referral or contact referral.¹¹

Bangladesh is a South Asian country with shared land borders with India and Myanmar, some of the HIV epicenters in the region. In general, STI prevalence among the general population is low, but it is high among the most-at-risk populations in Bangladesh.^{13–15} A study among women attending antenatal clinics (low-risk group) in Dhaka reported the prevalence rates of gonorrhoea, chlamydial infection, trichomoniasis and syphilis were 0.5%, 1.9%, 2.0% and 2.9%, respectively.¹³ A study among slum dwelling men and women (intermediate-risk group) in Dhaka reported prevalence rates of syphilis, gonorrhoea, chlamydial infection and hepatitis B virus to be 6.0%, 1.7%, <1% and 3.8%, respectively.¹⁴ A study among female sex workers (high-risk group) reported prevalence rates of gonorrhoea, chlamydial infection, trichomoniasis were 35.8%, 43.5% and 4.3%, respectively.¹⁵

STI management in Bangladesh varies by the type of service delivery setting and provider. General doctors and secondary/tertiary level providers in public sector may follow STI management protocols in medical textbooks that may be supported by basic laboratory investigations.^{16,17} At the primary healthcare level, NGO clinics play a vital role in STI management, where syndromic management protocols are mostly used without the benefit of laboratory confirmations.¹⁸ In both types of management, patients diagnosed as having STIs receive very limited or no counselling on safer sex, HIV transmission and PR, mostly because of severe time constraints of the care providers to attend to large number of patients. PR of any kind is not routinely practiced in the clinics providing STI care in Bangladesh. Expedited partner treatment by giving medicine to patients with STIs for their partners has been recommended by the Center for Disease Control but is not yet practiced in Bangladesh. Considering the potential of patient-oriented counselling in improving PR, we evaluated the role of single session counselling on PR among STI cases in selected clinics in Bangladesh. We hypothesised that a higher proportion of index STI cases participating in a counselling session would refer their partners compared to the STI cases in the standard care group.

METHODS

Study subjects

The study was conducted between January and September 2007 in six clinics specialising in STI care (three government hospitals and three NGO clinics) in Dhaka and Chittagong district in Bangladesh. Among the government hospitals, we have included Dhaka Medical College Hospital, Bongobondhu Sheikh Mujib Medical University and Chittagong Social and Preventive Medicine Hospital. Among the NGO clinics, we have included three Marie Stopes Clinics: two in Dhaka and one in Chittagong. These six clinics were selected based on their higher average daily volume of STI cases as determined by baseline assessment conducted at the planning stage of this study. Each newly-diagnosed STI case of age ≥ 18 years who had a sexual exposure in the last 3 months were invited to participate. STI diagnosis was based on syndromic management approach, which was adapted for Bangladesh.¹⁸ HIV status of the study subjects was unknown. All eligible patients were invited by the duty clinicians to participate in the study. Written informed consent was obtained from each participating study subjects.

Randomisation and intervention

The study was a quasirandomised trial, alternating PR counselling and non-counselling approach for each subsequent patient. The first patient in each clinic was randomly assigned to a group by the project research doctor then alternative allocation was maintained by the study interviewers. For index cases assigned to the counselling arm, a same sex counsellor conducted 10–15 min individualised sessions. Counsellors were specifically trained to deliver PR counselling focusing on five issues: (1) risk of reinfection if partners are not treated concurrently; (2) risk of developing complications; (3) risk of further spread of infection; (4) the asymptomatic nature of infection; and (5) social obligations and personal coping. These counselling contents were developed based on recommendations from a formative qualitative study and adapted for the Bangladesh context. The study was guided by the 'Attitude-Social influence Self-efficacy' (ASE) model adapted from the De Vries and Mudde, 1988.¹⁹

Patients in the non-counselling group received the standard care in the respective clinics, which included clinical consultation and prescription for medication but no PR counselling per se. In the government hospitals, index cases in both groups received free medication, while in the NGO clinics they received subsidised fee medication. Index cases in both groups also received standard, pretested anonymous PR cards along with a short briefing by the interviewers that index cases need to hand this card over to their partner(s) to bring them to the respective clinics for assessment of STI status. Cards were used to follow-up PR by tracking the index case's identification number and disease code as presented to the clinics by the referred partners. In addition, referral cards were useful for the partners to locate the study clinic, to be entitled to free (public hospitals) or subsidised medication (NGO clinics), and to distinguish the partners from index cases coming to the clinics.

Data collection

A structured questionnaire was used to collect data on demographic, socioeconomic, sexual behaviour and psychosocial variables related to PR. The survey was conducted by specifically trained same-sex interviewers in an isolated place in the clinic to maintain privacy. Interviews were carried out after the STI cases received needed medical care (after randomisation but before offering the PR card and counselling). The same person carried out interviews and offered counselling. The interviewers/counsellors were provided training prior to starting the study and special emphasis was put upon maintaining similar standards during interviews with participants in the counselling group versus the participants in the

non-counselling group. A logbook was maintained in each clinic to document the information from each index case on their randomisation status, diagnosis code, number of cards accepted and PR status. Referral cards given to the index cases for PR were collected by the clinic receptionist when a partner reported to the clinics within 1 month of interview of the index cases. We accepted a partner if he or she reported to have lost the card or forgot to bring it to the clinic. The receptionists were blinded to the group allocation of the index cases.

Study outcome

The study outcome was defined by the proportion of index cases who referred at least one partner to the study clinics within 1 month of interview. Outcome data were measured by verifying the PR cards when partners reported to the study clinics. Only in a few instances more than one partner returned from an index case, thus we have not accommodated additional partners in our analysis. A simple anonymous PR card was designed and tested before introducing it to the study. In defining sexual partners, we included both marital partner(s) and non-marital partners with whom the study subjects had sexual relationship within the last 3 months. Among non-marital partners, we considered regular non-commercial partner(s) (fiancé, relative, etc) and regular commercial sex partner(s).

Sample size calculation

Sample size was calculated taking into account the assumptions that the study will achieve 10% difference in PR outcome between the counselling group and the non-counselling group at a two-sided 5% significance level (type I error) along with 90% power (type II error). The 10% difference represents the difference between a 35% PR in one group and a 25% PR in another group. Therefore, a sample size of 1100 index cases (550 in each of the group) was needed with an attrition rate of 20%. We realised from our interim evaluation of patient recruitment status that a certain proportion of index cases were not accepting partner cards, and then we continued patient recruitment until the sample size is achieved for the cases who actually received referral cards.

Data analysis

Demographic characteristics, sexual behaviour (number of partners, partner type, sex with commercial partners), PR card acceptance rates and actual PR rates were compared between study patients in both groups by using the χ^2 test for categorical variables and t test for continuous variables. We conducted post hoc subgroup analyses to understand if PR outcome was different in counselling group and non-counselling group by subgroups. We explored the potential subgroups by examining significant interactions with the intervention assessed in logistic regression analyses.

To determine the effect of counselling on PR outcome, univariate and multivariate modified Cox proportional regression analyses were conducted to estimate prevalence ratios. PR outcome in this study was not a rare event and we decided to estimate prevalence ratio instead of OR so derived from the logistic regression analysis. By assuming a constant risk period, the conditional HR estimated by the Cox regression model can be adapted to estimate prevalence ratios for cross-sectional data.²⁰ Statistical significance in the analysis was set at $p \leq 0.05$. Data analysis was conducted using SPSS V.15 software (SPSS, Chicago, Illinois, USA).²¹

RESULTS

All of the 1416 STI cases approached to participate in the study agreed but 77 of them were found to be ineligible: 66 did not have any sexual exposure within last 90 days of

recruitment, 10 had <18 years of age and 1 was excluded because of incomplete interview. Out of 1339 cases randomised, 675 were in the counselling group and 664 were in the non-counselling group. Index cases in the counselling group and non-counselling group were comparable in terms of their sex, age, education, religion, income and of type clinic they were recruited from, except for the fact that card acceptance rate was significantly higher in the counselling group compared to the non-counselling group (84% vs 78%; $p=0.006$) (table 1). Overall, more women than men were recruited in the study (55% women vs 45% men), just over a quarter (26%) of the index cases were single and 53% of them were recruited from the NGO clinics. Index cases were not significantly different between the groups by condom use rates, STI symptoms and duration of disease. A quarter of the index cases reported having >1 sex partner in last 3 months, 39% reported to have commercial partners; such behaviours were reported overwhelmingly by the men (table 2). Only 8% of the index cases reported to use condoms in their last sex.

Of the 249 index cases who declined a referral card, 42.6% were from the counselling group and 57.4% were from the non-counselling group. Index cases in this group were predominantly men, currently single and recruited from the government clinics; however, their distribution was similar between the counselling group and the non-counselling group. In this group, 91.6% of the index cases were men (90.6% in counselling group vs 92.3% in non-counselling group), 78.7% were single (79.2% in counselling group vs 78.3% in non-counselling group), 94.4% were recruited from government clinics (94.3% in counselling group vs 94.4% in non-counselling group), 86.3% had commercial partners (84.9% in counselling group vs 87.9% in non-counselling group) and 41.8% had more than one partner (34.9% in counselling group vs 46.9% in non-counselling group).

Overall, 32% (430/1339) of the index cases referred their partners; the proportion being significantly higher in the counselling group compared to the non-counselling group (37% (248/675) vs 27% (182/664); $p=0.0001$). For genital ulcer disease, 42.3% clients in the counselling group referred their clients compared to 27.7% in non-counselling group ($p=0.0001$) but for all other symptoms referral rates were not significantly different. The PR rate was higher among index clients with higher age, higher income, NGO clinics attendees, only one partner and no commercial partners, but counselling had a significantly positive impact in all of the subgroups (table 3). The PR rate was significantly higher in the counselling group compared to the non-counselling group for the index cases of age 30–52 years (33% vs 42%; $p=0.038$), with income more than Taka 10 000 (55% vs 43%; $p=0.018$), public clinics attendees (25% vs 14%; $p<0.05$), those who had only one partner (40% vs 32%; $p=0.007$) and those who had no commercial sex partners (46% vs 38% $p=0.012$).

Multivariate regression analyses revealed that the probability of PR was 1.3 times higher in the counselling group compared to the STI cases in non-counselling group (PR 1.3; 95% CI 1.1 to 1.6) (table 4). PR was significantly less likely for index cases with income of Taka 5001–10,000 (PR 0.7; 95% CI 0.6 to 0.9), Taka ≤ 5000 (PR 0.5; 95% CI 0.4 to 0.7) and the index cases who reported to have commercial partners (PR 0.5; 95% CI 0.3 to 0.8).

DISCUSSION

Single session counselling to cases with STIs had a modest but significant impact correlated with increasing PR in this study. The overall 32% PR rate in this study was higher compared to some other studies, 16% in South Africa²² and 21% in The Netherlands.²³ However, it was much lower than the 80% rate reported in a Zimbabwe study.¹¹ The latter study is atypical though because it reports self-reported PR outcome of the index cases, without further validation. A group of index cases (19%) did not accept the PR cards; a significantly higher card acceptance rate was noted in the counselling group compared to the non-

counselling group. The majority of those who denied PR cards were single men attended NGO clinics, but this pattern was similar for those in counselling group and non-counselling group. Inclusion of this group in our PR analysis might have diluted the effect of counselling to some extent but a bias would have occurred if we excluded them from analysis.

Income of index cases was found to be a significant predictor in multivariable analysis; index cases with lower income were less likely to refer their partners. The government clinics in our study provided free medications to the index cases and their partners, while the NGO clinics provided medicine at subsidised rates. The consultation fee was also very low in the public and NGO clinics. Thus the treatment-related costs may not have been a major barrier for PR in our particular context; rather, we posit that lower income STI cases are less likely to refer partners because of transportation costs, lost opportunity costs of spending time in referring partners, low educational levels and poor knowledge of the problem. We believe that further research is needed to explore and apply the most effective counselling strategies to maximise PR, especially for low-income cases. PR was significantly less likely among index cases having commercial partners compared to the index cases having no commercial partners. PR for commercial partners may be challenging for several reasons: less motivation of index cases, difficulty in reaching and unwillingness to establish further sexual relationship.^{11 24}

Key messages

- ▶ Single session counselling was correlated with moderate but significant increase in partner referral among index sexually transmitted infection (STI) cases in Dhaka, Bangladesh.
- ▶ Partner referral was significantly less likely among index cases reported to having commercial sex partners and those who are from lower income group.
- ▶ Partner referral card refusal rate was predominantly higher among single men attending public clinics.

Study strengths included the inclusion of government and NGO clinics in different geographic parts of Dhaka and Chit-tagong city and thus offered enough variability to attract STI cases from diverse socioeconomic strata. We believe that they are representative of the area we covered. We could not rule out that some partners might have been treated elsewhere, even though the index cases were told to refer their partners to the same clinic, where clinics offered free or subsidised medication as an incentive. Participating clinics mostly relied on a syndromic approach for STI diagnosis, leaving the possibility of false diagnosis resulting in unnecessary referral and chances of negative social consequences. We have not received notification of any unexpected occurrence from any referral attempts. Among the cases, 19% did not accept referral cards, this group may include those cases who are in doubt of any negative consequences.

There was no ideal control group in this study because the counselling and non-counselling group received PR cards, which had some influence on PR outcomes in both groups and may have diminished the effect of counselling to some extent.^{25 26} Since index cases in the counselling and non-counselling groups were recruited in the same clinics and the same person conducted interviews and provided counselling, contamination of information to some extent could have diluted the absolute effect of counselling on PR outcome. Nonetheless, any difference observed in PR rates between the counselling and non-counselling group would be attributed to the counselling alone. Although we did not perform cost benefit analysis to defend the modest gains that are probably attributable to the

intervention, data from other studies suggest patient related referrals to be highly cost effective in averting STI²⁷ and HIV infection.²⁸

The study findings conclude that single session counselling to cases with STIs had modest but significantly positive impact on increasing PR for STIs in Bangladesh. Our counselling session was, however, relatively short and focused on five selected issues. Further research with longer duration counselling on broader issues covering other known barriers of PR, along with cost effectiveness components, may be needed to demonstrate the more robust effect of counselling for promoting PR in resource limited settings. We do believe that this simple intervention could be useful in promoting PR by shifting the burden of overwhelmed clinical providers to the counsellors because clinics in resource constrained countries frequently fail in effective PRs.^{29–32} Bangladesh and other nations can benefit from more research on further development of PR counselling.

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Table 1

Sociodemographic characteristics of the index clients with sexually transmitted infections by counselling and non-counselling group

Characteristics	Counselling group, n = 675 (%)	Non-counselling group, n = 664 (%)	Total, n = 1339 (%)	p Value
Gender				
Female	371 (55.0)	370 (55.7)	741 (55.3)	0.78
Male	304 (45.0)	294 (44.3)	598 (44.7)	
Age, years				
18–25	223 (33.0)	227 (34.2)	450 (33.6)	0.91
26–52	208 (30.8)	201 (30.3)	409 (30.6)	
30–52	244 (36.2)	236 (35.5)	480 (35.8)	
Marital status				
Unmarried/separate	180 (26.7)	173 (26.1)	353 (26.4)	0.80
Currently married	495 (73.3)	491 (73.9)	986 (73.6)	
Education				
No education	124 (18.4)	112 (16.9)	236 (17.6)	0.45
Up to secondary	388 (57.5)	404 (60.8)	792 (59.1)	
Secondary and above	163 (24.1)	148 (22.3)	311 (23.2)	
Religion				
Muslim	634 (93.9)	631 (95.0)	1265 (94.5)	0.38
Others	41 (6.1)	33 (5.0)	74 (5.5)	
Income (Taka) *				
≤5000	233 (34.5)	218 (32.8)	451 (33.7)	0.73
5001–10000	240 (35.6)	249 (37.5)	489 (36.5)	
10001 and above	202 (29.9)	197 (29.7)	399 (29.8)	
Type of clinics				
Public clinics	319 (47.3)	309 (46.5)	628 (46.9)	0.79
NGO clinics	356 (52.7)	355 (53.5)	711 (53.1)	
Card accepted				
Yes	569 (84.3)	521 (78.5)	1090 (81.4)	0.006
No	106 (15.7)	143 (21.5)	249 (18.6)	

NGO, non-governmental organization.

* 1 US\$=68 Taka at the time of interview.

Table 2

Sexual behaviours and sexually transmitted infections symptoms among index clients by counselling and non-counselling group

Characteristics	Counselling group, n = 675 (%)	Non-counselling group, n = 664 (%)	Total, n = 1339 (%)	p Value
Had concurrent partners in last 3 months	311 (46.1)	277 (41.7)	588 (43.9)	0.11
Had more than one sex partners in last 3 months	155 (23.0)	138 (20.8)	293 (21.9)	0.33
Had commercial sex partner in last 3 months	263 (39.0)	253 (38.1)	516 (38.5)	0.74
Used condom in last sex	55 (8.1)	55 (8.3)	101 (8.2)	0.92
Diagnosis of STIs				
Gonorrhoea/urethritis/cervicitis	326 (48.7)	303 (46.2)	629 (47.4)	0.46
Genital ulcer/syphilis	44 (6.6)	35 (5.3)	79 (6.0)	
Chlamydia/NGU	130 (19.4)	131 (20.0)	261 (19.7)	
Trichomoniasis	87 (13.0)	94 (14.3)	181 (13.7)	
PID	77 (11.5)	80 (12.2)	157 (11.8)	
Others	6 (0.9)	13 (2.0)	19 (1.4)	
Duration of disease in days before coming for treatment, median (range)	20 (1–1825)	20 (1–4015)	20 (1–4015)	0.09*
Currently live with partner	439 (65.0)	429 (64.6)	868 (88.0)	0.78

NGU, non-gonococcal urethritis; PID, pelvic inflammatory disorder; STI, sexually transmitted infection.

* p Value from student's t test.

Table 3
Subgroup analyses of partner referral outcome among index clients in the counselling and non-counselling group

Subgroups	Counselling group		Non-counselling group		p Value
	n/total	%	n/total	%	
Overall partner referral (n=1339)	248/675	36.7	182/664	27.4	0.0001
Age, years					
18-25 (n=450)	60/223	26.9	52/227	22.9	0.32
26-29 (n=409)	85/208	40.9	52/201	25.9	0.001
30-52 (n=480)	103/244	42.2	78/236	33.1	0.038
Income (Taka)*					
≤5000 (n=451)	51/233	21.9	44/218	20.2	0.657
5001-10000 (n=489)	86/240	35.8	53/249	21.3	0.001
10001 and above (n=399)	111/202	55.0	85/197	43.1	0.018
Type of clinic					
Government (n=628)	79/319	24.8	44/309	14.2	0.001
Non-government (n=711)	169/356	47.5	138/355	38.9	0.021
Number of sex partners in last 3 months					
More than one partner (n=293)	40/155	25.8	14/138	10.1	0.001
One partner (n=1046)	208/520	40.0	168/526	31.9	0.007
Commercial partners in last 3 months					
Yes (n=516)	58/263	22.1	28/253	11.1	0.001
No (n=823)	190/412	46.1	154/411	37.5	0.012

* US\$1=Taka 68 at the time of conducting the study.

Table 4

Cox regression analyses to understand the role of counselling on partner referral among clients with sexually transmitted infections

Variables	n/Total	Unadjusted PR (95% CI)	p Value	Adjusted PR* (95% CI)	p Value
Randomisation					
Counselling	248/675	1.3 (1.1 to 1.6)	0.007	1.3 (1.1 to 1.6)	0.003
Non-counselling (reference)	182/664	1		1	
Age, years					
18–25	112/450	0.6 (0.5 to 0.8)	0.001	0.8 (0.6 to 0.9)	0.035
26–29	137/409	0.9 (0.7 to 1.1)	0.296	0.9 (0.8 to 1.2)	0.724
30–52 (reference)	181/480	1		1	
Income (Taka)					
≤5000	95/451	0.4 (0.3 to 0.5)	0.001	0.5 (0.4 to 0.7)	0.0001
5001–10000	139/489	0.6 (0.5 to 0.7)	0.001	0.7 (0.6 to 0.9)	0.002
10001 and above (reference)	196/399	1		1	
Type of clinics					
Government	123/628	0.5 (0.4 to 0.6)	0.0001	0.8 (0.6 to 1.1)	0.12
Non-government (reference)	307/711	1		1	
Number of sex partners in last 3 months					
More than one partners	54/293	0.5 (0.4 to 0.7)	0.0001	1.1 (0.7 to 1.6)	0.635
One partner (reference)	376/1046	1		1	
Commercial partners in last 3 months					
Yes	86/516	0.4 (0.3 to 0.5)	0.0001	0.5 (0.3 to 0.8)	0.001
No (reference)	344/823	1		1	

PR, prevalence ratio.

* Adjusted for all variables in the model.