MELA RESEARCH

Outcome evaluation of the Smart Journey HIV Intervention Program Among Sex Workers in Ethiopia

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ACRONYMS

AIDS	Acquired Immuno-Deficiency Syndrome
AED	Academy for Educational Development
BSS	Behavioral Surveillance Survey
CI	Confidence Interval
CSW	Commercial sex workers
FGAE	Family Guidance Association of Ethiopia
HCP	Health Communication Partnership
HCT	HIV Counseling and testing
HIV	Human Immunodeficiency Virus
IDI	In-depth Interview
KII	Key Informants Interview
MARPs	Most at risk populations
NGO	Non Governmental Organization
OLS	Ordinary Least Square
PPS	Probability Proportion to Size
PSU	primary sampling unit
PT	Projective Technique
SE	Standard Error
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

In July 2007 USAID awarded Health Communication Partnership (HCP) Ethiopia a 3-year Leader with Associate Cooperative Agreement. The primary focus of HCP/Ethiopia Associate Award is to develop and roll out an HIV/AIDS prevention strategy for high risk groups – commercial sex workers, university students and at-risk youth. The Smart Journey program, being implemented in Addis Ababa and Adama cities, is an intervention that focuses on commercial sex workers. The program has three major components: (1) structured group peer education sessions, (2) provision of condoms, and (3) referral to clinics. By March 2010 the program reached approximately 5,000 sex workers in almost 800 establishments. HCP has trained peer educators as well as establishment owners, and Kebele officials to gain their support and promote sustainability of the program.

HCP subcontracted Mela Research PLC to conduct an evaluation of its program intervention in order to record outcomes, gain insights into the process of behavior change among sex workers, and identify opportunities/challenges with respect to effective implementation of the program. This report presents findings of the outcome evaluation of the program that was fielded in April 2010 in Addis Ababa and Adama.

The study employed a mix of quantitative and qualitative methods. The quantitative method is the primary source of information for this evaluation. A *Posttest-Only Control Group Design* was employed using a two-stage sampling approach. A total of 566 sex workers in the intervention (n=288) and non-intervention area (n=288) were interviewed using a pre-tested structured questionnaire. Qualitative information including in-depth interview, case stories, key informants and group discussions were collected from sex workers, establishment owners, boyfriends (non-paying partners) and representatives of partner organization to gain better insight into and in-depth understanding of the effectiveness of the intervention from the beneficiaries perspective.

Summary of the salient findings of the study:

Condom use with new and regular paying clients is nearly universal in both areas

- Consistent condom use with all new paying clients in the previous 7 days reported nearly universal at 98.8% and 98%, respectively, in the intervention and non-intervention areas.

Condom use with Regular paying clients is significantly higher in the intervention area

- Consistent condom use with all regular paying clients in the previous 30 days was significantly higher at 98% in the intervention area compared to 91.5% in the non-intervention.

Condom use with non-paying partners (boyfriends) is significantly higher in the intervention area

- About 93% of the sex workers in the intervention area reported using condom with their most recent non-paying partners in the previous 7 days. This was reported significantly lower at 64.3% by the sex workers in the non-intervention.
- Three-quarter of the sex workers in the intervention area reported using condom with all non-paying partners last year. This was reported significantly lower at 54.2% by the sex workers in the non-intervention area.

Attitude towards condom significantly improved in the intervention areas

- Sex workers in the intervention area held significantly positive attitude towards condom than those in the non-intervention. The percentages of sex workers who scored above the mean on the condom attitude index were 63.4% and 50.4%, respectively, in the intervention and non-intervention area.

Condom efficacy is high and comparable between the intervention and non-intervention areas

- The percentages of sex workers who scored above the mean on the condom efficacy index were 81.9% and 79.6%, respectively, in the intervention and non-intervention area.

Condom access to sex workers significantly improved in the intervention areas through the peer educators and establishments

- Peer educators were reported the major sources of condom, as reported by 82.3% of the sex workers in the intervention area. This was reported to be low at 4.9% in the non-intervention area.
- Significantly more sex workers in the intervention area (36.8%) than in the non-intervention (12.2%) reported bars/hotels as sources for condom.
- The proportion of sex workers who reported their fellow sex workers as their sources of condom was 70%. The reporting for the same by the sex workers in the non-intervention was 48%.

Significantly higher condom possession by sex workers in the intervention area than in the non-intervention

- The average numbers of condoms sex workers reported to possess at the time of interview was 47 and 17 pieces, respectively, in the intervention and non-intervention area.

Sex workers in the intervention area reported to have better control over condom use and have become more vigilant in correct condom use as a result of the intervention

- As a result of participating in the intervention, sex workers reported to have begun using their own condom and avoiding condoms brought by clients, inspecting condom expiry dates, inserting a male condom onto a client and boyfriend, making sure that the condom is intact during sexual intercourse, removing and disposing condoms properly.

Knowledge of sexually transmitted disease significantly improved in the intervention area

- The proportion that ever heard of STDs was nearly universal at 97.2% among sex workers in the intervention area. This was significantly lower at 73.3% in the non-intervention.
- In terms of the knowledge of STD symptoms, about 96% of the sex workers in the intervention and 63.5% in the non-intervention reported to know at least one correct symptom of STD. Sex workers in the intervention area reported 4 STD symptoms on average. This was significantly higher than an average of 2 symptoms in the non-intervention.

Attitude towards seeking care for STD significantly improved in the intervention area

- About 85% of the sex workers in the intervention area scored above the mean on the index measuring positive attitude towards seeking care for STD. The corresponding percentage in the non-intervention area was significantly lower at about 57%.

STD testing and care seeking in health institutions significantly improved in the intervention area

- The percentage of sex workers with symptoms of STD (past 6 months) who sought care in health institutions reported at 79.4% and 63.8%, respectively, in the intervention and non-intervention areas.
- Among those sex workers from the intervention area that sought care for STD, most (42.6%) reported receiving the care from the FGAE clinic. Only 5.4% of the sex workers from the non-intervention sought treatment in the FGAE clinic.

Sex workers self-esteem and efficacy significantly improved in the intervention area though still far off universal

- The proportion that scored above the mean on the self-esteem index was 51.2% in the intervention area, which is significantly higher than the 34.1% in the non-intervention. Likewise, sex workers in the intervention area exhibited significantly higher self-efficacy than those in the non-intervention (55.8% vs. 35%).
- Nevertheless, still about half of the sex workers in the intervention area scored below the mean in both the self-esteem/efficacy indices, suggesting that most are suffering from an 'inferiority complex', feel they are of less value and also lack the confidence in decision-making and control of their life situation.

Social capital among sex workers significantly improved in the intervention area but sex workers perceived the still difficult and challenging relationships with fellows and peers

- Perception of social support, which measures the perception of sex workers in counting on peers/fellow sex workers during times of difficulty, willingness to help one another and to have collegial relationship, significantly improved in the intervention area. The proportion of sex workers who scored above the mean on the social support index was 61.2% and 47.2%, respectively, in the intervention and non-intervention area.
- Sex workers of perception of group cohesion, i.e. faith and participation in support groups, valuation or belief in working together as peers, have also improved significantly in the intervention area. The proportion that scored above the mean in the group cohesion index was significantly higher in the intervention area than in the non-intervention (64.6% vs. 52.7%).
- Perception of collective efficacy in sex workers' performance capabilities as a group, such as having the capabilities to address social problems together, have improved significantly in the intervention area. Two-third of the sex workers in the intervention area scored above the mean on the collective efficacy score, which is significantly higher than the 52.7% in the non-intervention.

Conclusion and Recommendations:

Findings of this evaluation, taken together, demonstrated that the overall goals of the Smart Journey program intervention were largely met. Condom use with non-paying partners, with regular paying clients and treatment seeking for STD significantly improved. Parallel with these, the intervention brought about positive changes in a number of intermediate outcomes including attitude and efficacy in relation to condom, correct use of condom, knowledge of STDs and attitude towards seeking care for STDs. Psychosocial aspects of CSWs, especially their self-esteem have impacted positively by the intervention. By creating enabling environment, the program also significantly improved perceived social capital including social support, group cohesion and collective efficacy of CSWs.

Several programmatic recommendations are suggested to help improve existing intervention program in the areas. While the main text provides the recommendations in detail, broad areas of recommendations emerging from this evaluation revolve around the following:

- Improve further sex workers' condom use with boyfriends (non-paying partners)
- Improve regular STD check-up of sex workers
- Improve further the social capital of sex workers
- Encourage full participation and attendance of sex workers in the peer education sessions; and address dropouts from peer education
- Active tracing of new sex workers to enrol in the program

I. INTRODUCTION

1.1. Commercial sex workers (CSWs) in Ethiopia

Sex work in Ethiopia is believed to have emerged along with the selling of local drinks such as, *tella, tej, and areke.* As the rate of migration from countryside to roadside and market villages has increased, so too the number of single women becoming brewers and sellers of local drinks has risen. In the 1970s, 40-60% of these women was considered to be sex workers rather and no longer respected in their community[1]. With the emergence of beer houses where commercial bottled beer is sold, sex work has become quite apparent in bars and groceries in most urban parts of the country. Available data indicate that much younger women are becoming sex workers in recent years than before. In 1989[2] the median age of sex workers in Addis Ababa was 31.2 years, and this has declined to 21 and 22 years, respectively, in 2002[3] and 2005[4]. Strikingly, about a third (30.2%) of the sex workers interviewed in the 2005 national Behavioral Surveillance Survey (BSS) was in the age group 15-19 years.

Ever since the HIV epidemic started in Ethiopia commercial sex workers have been highly exposed to HIV. Due to their high HIV prevalence, to their increased ability to transmit HIV when co-infected with other STIs, and to the broad population groups they reach through their clients, sex workers have often been described as 'core group', namely, a small group in which the infection is endemic and from whom it spreads to the population at large[5]. The first HIV prevalence survey among sex workers in Ethiopia was available from 1988, i.e. only four years after the first HIV cases were detected in the country. The survey covered 6234 female sex workers operating in 23 major urban areas in the main trading roads of Ethiopia. HIV prevalence rates ranging between 5.3% and 38.1% with mean prevalence of 17% was reported. The study was an eye opener signaling the wide spread of the virus among sex workers and their clients in the country[6]. A year later survey showed about a quarter (24.7%) of the sex workers in Addis Ababa was already infected[7]. By 1990, HIV prevalence reached 50% among sex workers in four major urban areas of the country[8]. In 1998 a remarkably high HIV prevalence of 73.7% was documented among sex workers attending STD clinics in Addis Ababa[9]. In 2008, a study in 10 "hotspot" Woredas of the Amhara region found that 37% of the 349 sex workers had HIV. HIV prevalence appeared to increase with age - from 26% among the 14-19 years to 37.7% and 47.7%, respectively, among the 20-24 and 25 or older age groups. Another recent data (2008) came from those sex workers who tested via the mobile HIV counseling and testing in 40 major towns of the country. Of the 594 who reported their occupation as sex worker, 25.3% were tested positive for HIV[10]. The recent studies though limited by their geographic coverage and the strength of the methods they employed, have confirmed the fact that sex workers are highly exposed to HIV and still are the "core group" for the spread of HIV in urban Ethiopia.

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[1] Plorde DS. Sexually transmitted diseases in Ethiopia. Br J Vener Dis. 1981; 57:357-62.
[2] Mehret M, Khodakevich L, Shanko B, Belete F. Sexual behaviors and some social features of female sex workers in the city of Addis Ababa. *Ethiop J Health Dev.*1990d, 4 (2): 133-137.
[3] Family Health International: Ethiopia. HIV/AIDS Behavioral Surveillance Survey (BSS)– Ethiopia 2002: Round One. 2002. Addis Ababa.
[4] MOH/HAPCO: Ethiopia. HIV/AIDS Behavioral Surveillance Survey (BSS)– Ethiopia 2006: Round Two. 2007. Addis Ababa, [Preliminary Report]
[5] Aklilu M, Messele T, Tsegaye A, Biru T, Mariam DH, Van Bethem B, et al. Factors associated with HIV-1 infection among sex workers of Addis Ababa, Ethiopia. AIDS 2001, 15:87-96.
[6] Mehret M, Khodakevich L, Zewdie D. HIV infection and related risk factors among female sex workers in the urban areas of Ethiopia. *Ethiop J Health Dev.*1990a, 4 (2):163-170.
[7] Mehret M, Khodakevich L, Zewdie D., Ayehunie S, Shanko B, Gizaw G, et al. HIV-1 infection and some related risk factors among female sex workers in Addis Ababa. *Ethiop J Health Dev.*1990c, 4 (2): 171-176.
[8] MOH. AIDS in Ethiopia: 1996. Addis Ababa
[9] Ibid, 4
[10] Mekonnen, Y. June 2009. Mobile HIV Counseling and Testing: A new lens through which to view the urban HIV epidemic in Ethiopia. Bethesda, MD: Private Sector Partnerships-Ethiopia, Abt Associates Inc.

Commercial sex workers in Ethiopia need to be empowered to appreciate and use condoms in all types of sexual relationships and to gain greater control over their own health, especially in seeking care for sexually transmitted diseases. The limited information available in the country suggested the particular lack of condom use with non-paying partners, as most sex workers find it difficult to use condoms with non-paying partners due to their "trusting for love". With paying clients, barriers to condom use included clients' refusal to use condoms, having sex under the influence of alcohol, avoiding condoms for more pay, lack of awareness, belief of low HIV risk from some (e.g. rural) clients, negligence and the use of family planning methods other than condoms [11,12,13]. In 2008, a survey of sex workers and their clients in ten major urban areas of Ethiopia concluded that condom use in commercial sex is high, but much lower with non-paying partners. Nearly all sex workers (99%) reported using condoms with their most recent client (last seven days) and 86% reported using condoms consistently with clients over the 30 days preceding the interview. In contrast, 66% and 56% of sex workers reported using condoms consistently over the 30 days and year preceding the interview, respectively, with non-paying partners[14].

HIV prevention programs among commercial sex workers have reported success in reducing HIV and STI incidence. Comprehensive HIV prevention programs combining condom promotion and provision, STI treatment, and prevention education interventions delivered through outreach, peer education, and sex worker empowerment approaches have made sex work safer[15]. Interventions designed to prevent HIV infection among sex workers must also take into account the context in which sex workers are working, and the specific practices of individual sex workers[16].

1.2. Background and evaluation objectives

In July 2007 USAID awarded Health Communication Partnership (HCP) Ethiopia a 3-year Leader with Associate Cooperative Agreement. The award builds on 4 years of previous in-country behavior change communication experience in HIV/AIDS prevention, child survival, and reproductive health and education activities. The primary focus of HCP/Ethiopia Associate Award is to develop and roll out an HIV/AIDS prevention strategy for high risk groups – Commercial Sex Workers, University Students and At-Risk Youth. Through its strategic approach to communication, HCP/Ethiopia and its partners work to create an environment that supports individuals, families, and communities to develop life skills that will assist them to remain HIV free, take concrete steps to reduce risky behaviors and to advocate for and have access to quality services.

The Smart Journey program, being implemented in Addis Ababa and Adama cities, focuses on commercial sex workers. The program has three major components: (1) structured group peer education sessions, (2) provision of condoms, and (3) referral to clinics. In collaboration with lead partners (i.e. FGAE, PSI, Nikat, Sister Self-Help Association and Adama Atekalay Idirs Association), HCP works with current and former sex workers who are trained as peer educators. These women visit establishments/brothels weekly and carry out a series of eight activities related to safe sex, condom distribution and referrals to clinics. As of October 2009, the program has graduated 1,500 sex workers. By March 2010 the program reached approximately 5,000 sex workers in almost 800 establishments. HCP has trained peer educators as well as establishment owners, and

[11] Mekonnen Y, Daniel G, Tegbaru B, et al. Magnitude of and risk factors for HIV infection among most-at risk population in Amhara region, Ethiopia. 2008
[12] DKT and HAPCO. Study of condom use and behavior among venue-based sex workers and their clients in major urban areas of Ethiopia. January 2009
[13] TransACTION formative research. June 2010. Unpublished Report
[14] Ibid, 13
[15] UNAIDS (2003). UNAIDS Inter-Agency Task Team on Gender and HIV/AIDS
[16] Center for Health and Gender Equity (1999). "Women at Risk: Why are STIs and HIV different for women?" Takoma Park, Maryland (USA): Center for Health and Gender Equity.

Kebele officials to gain their support and promote sustainability of the program. In addition, the Smart Journey Program design includes - outreach activities to establishment owners, Kebele officials and boyfriends, outreach activities by sex workers to young women who live near them, certification of establishments that meet safety criteria, and a self assessment tool to be completed by sex workers before and after the program (in development).

HCP subcontracted Mela Research PLC to conduct an evaluation of its Smart Journey program intervention in order to record outcomes, gain insights into the process of behavior change among sex workers, and identify opportunities/challenges with respect to effective implementation. The evaluation has the following objectives:

- Determine the Smart Journeys project outcomes
- Gain crucial insights into the process of behavior change among commercial sex workers and
- Understand opportunities and barriers experienced by different constituents (commercial sex workers, establishment owners and peer educators) with respect to the effective implementation of the intervention.

This report presents findings of the outcome evaluation of the program that was fielded in April 2010 in Addis Ababa and Adama.

II. METHODOLOGY

The study employed a mix of quantitative and qualitative methods. The quantitative method was primarily used to examine the effect of the program intervention on several key program outcome indicators. The qualitative methods allowed gaining a better insight into and in-depth understanding of the effect of the intervention from the program beneficiaries' perspective. Both the quantitative and qualitative facets of this evaluation collected data in the program areas of Addis Ababa and Adama.

2.1. Quantitative method

Study design:

The program did not collect a baseline (pre-test) data on key indicators before the start of the intervention. As a result we resort to a *Posttest-Only Control Group Design*. This design allows measuring the effect of the program intervention by comparing the intervention area with the non-intervention (control)[17]. In order to correct for potential systematic (non-random) misclassifications between intervention and control groups, the evaluation collected detailed information on exposure to intervention, and confounding variables that potentially mediate key program outcomes.

Sampling:

A two-stage sampling was employed. In the first stage sex work clusters[18] were selected. In the second stage establishments were selected. Sex workers were interviewed from the selected establishments. They were recruited into the study and interviewed based on their presence at the time of the interview and their willingness to participate. We set to interview a maximum of 2 sex workers per establishment. If more than 2 sex workers were found at the time of the interview, a lottery method was employed to randomly select two.

Cluster mapping:

Since there was no readymade sampling frame for sex workers, we did mapping of sex work clusters at the initial stage of this study. This was basically employed to get sampling frame of sex worker clusters for subsequent selection. An ethnographic or social mapping procedure was employed to construct the sex workers locations in Addis Ababa and Adama. This was done in the entire cities both in the intervention and non-intervention areas. As part of cluster mapping we collected the number of establishments in a cluster, type of establishment, rough estimate of the number of sex workers, whether that cluster is the HCP program area and, if so, whether it was fully or partially covered by the program, among others. The mapping process involved key informant interviewing, observation and spending time "walking the community" in the company of key informants. A sex worker cluster mapping guide was prepared for the purpose and implemented. In the two cities a total of 49 eligible[19] sex worker clusters were mapped and included in the sampling frame.

Clusters, establishment and sex workers selection:

Clusters to be included were sampled using probability proportion to size (PPS). This was possible because as part of the cluster mapping we collected the number of establishments found in all the clusters including a rough estimate of the number of sex workers operating in the establishments. In

[17] Fisher A, James R, Laing J, et al. Designing HIV/AIDS intervention studies: An operations research design handbook. Population Council May 2002

[18] A cluster is a small village (often less than a Kebele) containing a high concentration of sex workers, such as bars, local drink houses, red light houses where sex workers are congregated.

[19] For the purpose of this study, a specific area/village to be considered as a sex worker cluster at least 20 sex worker establishments should be found in that area.

each of the selected clusters, establishments were selected using systematic sampling. Both small and big establishments were included in the sample via proportional sampling. A maximum of 2 sex workers were interviewed per establishment. When the number of sex workers per establishment exceeded 2, a lottery method was employed by the data collectors to randomly select only 2.

Sample size:
The sample size was calculated to detect a 10% difference in consistent condom use with all paying clients with 80% power, 95% precision and a design effect of 2. This resulted in a sample size of 288 in the intervention and 288 in the non-intervention study arms. A 24 by 24 sampling was implemented (i.e. 24 sex workers were interviewed per clusters; the total number of clusters being 24).

The questionnaire:
A structured questionnaire was used for an individual one-on-one interview (See Annex 1). The development of the survey questionnaire was guided by the evaluation objectives. The questionnaire was pre-tested and administered in Amharic (official language of Ethiopia).

2.2. Qualitative methods

In-depth Interview (IDI)
A total of 48 sex workers, 24 establishment owners and 24 boyfriends (non-paying partners) were interviewed all from the HCP program intervention area. The list of establishments that participated in the intervention was obtained from the HCP records. First, we randomly selected establishments. Then, from within the selected establishments we recruited owners and sex workers for the in-depth interview. Boyfriends were contacted through their sex worker girlfriends. Three IDI guides for sex workers, establishment owners and boyfriends were used (See Annex 2).

Case story documentation
Case stories of 8 sex workers who have made remarkable achievements as a result of participating in the HCP program intervention were documented. Respondents to the case stories were all identified by the HCP office and staff in the field. The case story interviews were guided by a semi-structured interview guide (Annex 3).

Key-informants interview (KII)
List of all key informants and their contact address were obtained from HCP office. These informants emerged from partner organizations including NGOs, health facilities, and community-based associations that have direct or indirect relationships with the Smart Journey intervention. The main objective of the interviews was to gain partners' insight into the HCP program intervention. We interviewed all 15 key informants that were identified by the HCP office. The KII guide is annexed (Annex 4)

Projective technique (PT)
Using a qualitative data collection technique known as projective technique, information was collected from 16 groups; each group composed of 8 sex workers. Separate group discussions were made with peer educators and ordinary sex workers. Participants for group discussion were recruited by the data collectors/PT moderators from the different sex work clusters in the project intervention area and non-intervention area. PT moderators coordinated their effort with the quantitative data collectors; and recruited sex workers to be participated in the PT from those establishments that were sampled for the quantitative individual one-on-one interview. Sex workers in the sampled establishments who were neither included in the one-on-one interview nor in the IDI were eligible to participate in the PT. In each group discussion, a "homogeneous stranger" approach was employed. That means participants in the group discussion were composed of individual sex workers who did not know one another. This report doesn't include the findings from the PT; a separate report is being prepared on this by the AED.

2.3. Training of data collectors and supervisors

A 4-day data collectors' training was conducted. The trainings were given in three parallel sessions, separately for the quantitative, IDI/KII/case story and PT. Data collectors were oriented about the objectives of the assessment, the type of information sought, data handling, ensuring data quality and the ethical aspects of the study. An item-by-item training of the survey tools constituted the major part of the training. The training was supplemented by mock interview. A half day field practice was part of the training for the quantitative survey. The core assessment team, responsible for the trainings, facilitated and provided feed back to training participants.

The data collection teams comprised the following - 11 quantitative data collectors, 8 IDI/KII/case story interviewers, and 4 PT group discussion moderators. Four field supervisors were also deployed to monitor data collection in Addis Ababa and Adama.

2.4. Data management and analysis

Quantitative data:
The data from the questionnaire were computerized using EPI-INFO. Two highly experienced data entry clerks computerize the data. Data cleaning and post coding were part of the quality assurance process.

Data analysis primarily focused on comparing key outcome indicators of interest between the intervention and non-intervention areas. Those variables that may account for any differences between the two study arms were adjusted for in multivariate analyses. All associations/correlations were tested for significance. Different multivariate analyses procedures were employed in accordance with the nature of the outcome variables. Whereas Logistic regression analyses were used for the dichotomous outcome variables, Ordinary Least Square (OLS) method was employed for the continuous outcome variables. Analyses was performed using STATA 10.

Psychosocial and attitudinal measurements:
Several propositions (items) were posed to sex workers to measure their perception on self-esteem, self-efficacy, and social capital as well as their attitude towards condoms and treatment seeking for STD. The items for each thematic area were selected based on their relevance to the HCP program intervention; most were also used elsewhere. They were however pre-tested for their relevance to our study population. The study questionnaire details the different items used in the study. Each of the items was scored on a 5-point Likert-type summative scale, where 1=strongly disagreed, 2=disagree, 3=neutral, 4-=agree and 5=strongly agree. Scores were assigned to each of the responses to reflect the strength and direction of the perception, attitude expressed in a particular statement, with 5 indicative of a strongly positive perception/attitude and 1 reflective of a strongly negative perception/attitude towards the particular statement. For each respondent, the sum of responses of the items for a given thematic indicator (e.g. self-esteem) yields a summary combined index for that indicator. To evaluate the internal consistency of the items used to generate a summary combined index, Chronbach's alpha coefficient was computed. Typically, social scientists consider an alpha coefficient of 0.60 or greater to constitute a strong measure of internal reliability.

The combined summary indices scores were dichotomized into "below the mean-Low" and "above the mean-high" by splitting the indices into 2 parts. High score (above the mean) for any index is defined when the cumulative distribution of the scores exceeded 50%. The dichotomized indices for the different thematic indicators are used to compare sex workers' performance between the intervention and non-intervention areas.

Dose-response relationships and thresholds:
Dose-response relationships was also assessed and presented in this report. This measures the quantitative relationship between the amount of exposure to the HCP intervention (i.e. the number of weeks the peer education sessions attended) and the extent of change in the desired outcomes. The outcomes included, among others, condom use, knowledge of STDs, treatment seeking for STD, and social capital. Together with this analysis, we attempted to detect quantitatively the degree of exposure, as measured by the number of weeks of attendance to the peer education sessions, which produced significant effect on the outcomes. A threshold is the exposure level above which the desired outcomes (knowledge or behavioral change) can occur. In this study we use the term threshold effect to indicate the amount or dose of exposure to the HCP intervention that would yield the maximum possible effect of the exposure on the outcomes; and that exposure above that level may not have any significant added value. It should be underlined that this analysis is based on a simple descriptive approach via graphical presentations.

Qualitative information:
Data collectors did verbatim transcription of all audio-taped interviews and discussions to Amharic. The qualitative analysis is designed to provide a better understanding of the dynamics of change among sex workers participating in the intervention program. It also informed opportunities and barriers to successes. In analyzing the qualitative information, our aim was TO identify common themes in the transcribed documents. The processes required summarizing, categorizing, and constantly comparing individual in-depth interviews so as to derive patterns of response by some characteristics of respondents.

2.5. Ethical considerations

The study received IRB clearance from AED. Participants of the study were given complete information as to the objective of the study and their benefits/risks and only following their consent were they participated in the study (Annex 5). Data collectors were given orientations and written instruction on how to maintain the ethical aspect of the study. Participants were not provided with any payment to take part in the study. However, participants to the IDI/case story and PT/group discussion received 40 Eth. Birr (~3 USD) as a reimbursement for expenses incurred as a result of participation, including travel expenses and reimbursement for time lost.

The information collected was anonymous and no identification, such as, names, identification numbers, etc, were collected that can be used for tracing purpose after the collection of data. All the information and data collected are accumulated, organized, stored, analyzed, and retrieved guaranteeing confidentiality. Information was analyzed as group data.

2.6. Study limitations

The design employed in this study has some drawbacks that deserve mentioning. First, the design does not allow determining the extent of temporal change in key indicators in the intervention area because a baseline pretest measurement was not taken. Second, we have noticed during data analysis (see Table 1) that most of the socio-demographic characteristics of sex workers in the intervention and non-intervention areas differed significantly. Since these socio-demographic characteristics could influence outcome indicators, Univariate analyses can only provide gross effects of the intervention. Therefore, we presented multivariate models to correct for differences in the socio-demographics and other characteristics of sex workers between the two study arms. The multivariate analyses allow us to estimate the net effect of the program intervention on a number of key program outcome indicators.

III. PROGRAM OUTCOME

3.1. Background characteristics:

In each study arm 288 sex workers were interviewed. The completeness rate was 100%. Table 1 presents the background characteristics of respondents in the HCP intervention and non-intervention areas. Most respondents in both study arms came from Addis Ababa because of the higher concentration of sex workers in Addis Ababa than in Adama and that we employed a probability proportion to size selection procedure. Because of their higher concentration, small[20] establishments represents about three-quarter of the sex work establishments included in the study. Of note, the proportion of big establishment that were sampled appeared significantly higher in Adama than in Addis Ababa (27.8% vs. 18.4%).

Sex workers are in general young. Their mean age was 24.2 and 22.8, respectively, in the intervention and non-intervention areas. This age difference between the two study arms was statistically significant. On the whole, sex workers in the intervention area appeared to have significant better educational status than those form the non-intervention. Data show 84.7% and 70.3% of the sex workers in the intervention and non-intervention areas, respectively, can read or write. The proportion that achieved at least 7 years of schooling also found significantly higher among sex workers in the intervention area than in the non-intervention (46.9% vs. 32%).

As expected, the vast majority of the sex workers in both study arms were never married at nearly 80%. Despite this, a substantial portion of them in both study arms reported to have born at least one child – 35.8% vs. 37.9% in the intervention and non-intervention areas, respectively. We also asked sex workers the number of children living with them and that 26.7% of those from the intervention and 13.5% form the non-intervention reported to have children living together.

Sex workers in the intervention reported to have lived in their current residence (Addis Ababa or Adama) for an average of 13.3 years. This is twice higher than the average duration reported by sex workers in the non-intervention.

Sex work is the only means of income for the vast majority of the sex workers included in this study at 88%. Nevertheless, significantly more sex workers in the intervention area (16.7%) than in the non-intervention (6.9%) reported to have engaged in another income generating activity ion op of sex work.

Taken together, sex workers in the two study arms appeared to differ significantly in a number of background characteristics including the type of establishment, age, educational status, number of children living together, duration in current residence and participation in other income generating activities. These differences may influence comparison of outcome indicators between the two study arms. Thus, we present in this report multivariate models to adjust for the potential confounding effects of these and other variables while comparing key outcome indicators between the intervention and non-intervention areas.

[20] Small establishment include red-light houses and local drink houses; big establishments include bars and hotels with higher concentration of sex workers

Table 1. Selected socio-demographics characteristics of respondents, Commercial Sex Workers, Addis Ababa and Adama, April 2010

	Intervention area n=288	Non-intervention n=288	P-value
Place of residence			
Addis Ababa	58.3	75.0	p<0.000
Adama	41.7	25.0	
Type of establishment			
Big	18.4	27.8	p=0.008
Small	81.6	72.2	
Age			
15-17	6.6	7.3	p=0.001
18-20	26.7	39.9	
21-24	24.6	26.4	
25+	39.6	25.4	
Missing	2.4	1.0	
Mean age (95% CI)	24.2(23.5-24.9)	22.8(21.6-22.3)	
Education			
Cannot read/write	15.3	29.7	p<0.000
Grade 1-6	37.9	38.2	
Grade 7-9	34.0	24.7	
Grade 10 +	12.9	7.3	
Marital status			
Never married	79.5	82.3	p=0.524
Living together (cohabiting)	8.0	7.6	
Divorced/widow	4.9	2.8	
Married	7.6	8.3	
Number of children ever born			
0	54.2	62.2	p=0.122
1	28.8	25.4	
2+	17.0	12.5	
Number of children living together			
0	73.3	86.5	p<0.000
1	18.7	10.8	
2+	8.0	2.7	
Duration in current resident			
<1 year	1.7	8.3	p<0.000
1-2 years	10.4	27.8	
3-4 years	9.0	16.8	
5-9 years	18.4	21.9	
10+ years	59.0	23.3	
Missing	1.4	2.1	
Mean duration (95% CI)	13.3(12.2-14.3)	6.6(5.8-7.5)	
Participate in other income generating activities			
Yes	16.7	6.9	p<0.000
No	83.3	93.1	

CI= confidence interval

3.2. Entry into sex work and duration in sex work

Table 2 presents age at entry into sex work, place started sex work and duration in sex work. The average age at start of sex work estimated at 18.8 and 18.3 years, respectively, among sex workers in the intervention and non-intervention areas. The majority of the sex workers in both study arms (82%) reported that they started sex work in their current place of residence (Addis Ababa or Adama).

Total duration in sex work reported to significantly differ between the intervention and non-intervention areas. Sex workers in the intervention area on average served in sex work for 5.4 years, which is significantly higher than the 3.5 years for those from the non-intervention. More specifically, information was also collected on the number of months served as a sex worker in the current residence. The average duration in sex work in the current residence was 38.1 months in the intervention area while this was significantly lower at about 23 months in the non-intervention. This variation in sex work duration between the two study arms necessitates adjusting for the potential confounding effect of duration in sex work while comparing outcome indicators between the two study arms.

Table 2. Age at entry into sex work, place started sex work and duration in sex work, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=288	Non-intervention n=288	P-value
Age at start of sex work			
<15	11.5	10.4	
15-17	27.4	24.0	
18-20	31.9	41.0	
21-24	15.6	18.1	
25+	10.4	4.2	
missing	3.1	2.4	
Mean age (95% CI)	18.8(18.3-19.3)	18.3(17.9-18.8)	p=0.184
Place started sex work			
This town (Adama or AA)	81.9	83.7	P=0.665
Other town	16.7	15.6	
Missing	1.4	0.7	
Duration in sex work (total)			
<1 year	2.8	12.2	
1-2 years	32.6	43.1	
3-4 years	20.8	19.1	
5+ years	40.6	23.3	
missing	3.1	2.4	
Mean duration (95% CI)	5.4(4.7-6.0)	3.5(2.9-3.9)	p<0.000
Duration in sex work (current resident)			
< 6 months	8.3	30.6	
6 -11 months	10.1	8.7	
12-24 months	18.4	20.1	
24-60 months	37.5	26.4	
60 + months	25.0	12.5	
missing	0.7	1.7	
Mean duration (95% CI)	38.1(33.6-42.7)	22.9(19.4-26.2)	p<0.000

CI= confidence interval

3.3. Alcohol, Khat[21] and other substance use

The reporting of alcohol use in the previous 7 days of interview appeared to be significantly higher at about 72% in the intervention area compared to 60.8% in the non-intervention (Table 3). Likewise, significantly more sex workers in the intervention area than in the non-intervention reported to have ever used Khat (59.4% vs. 46.5%). The use of Hashish was reported by few sex workers in both study arms – 3.8% in the intervention and 0.4% in the non-intervention. The noted difference in Hashish use between the two study arms was statistically significant. It is unknown whether the noted differences in alcohol and substance use between the sex workers in the two arms are influenced by the differences in some of the background characteristics such as duration in sex work, education status, engagement in additional income generating activities among others.

Table 3. Alcohol, Khat and Hashish use among respondents, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=288	Non-intervention n=288	P-value
% who had alcohol drink in the last 7 days	71.9*	60.8	p=0.015
% who reported ever using:			
Khat	59.4**	46.5	p=0.003
Hashish	3.8*	0.4	p=0.012

**p<0.05; **p<0.01*

3.4. Exposure to HCP intervention

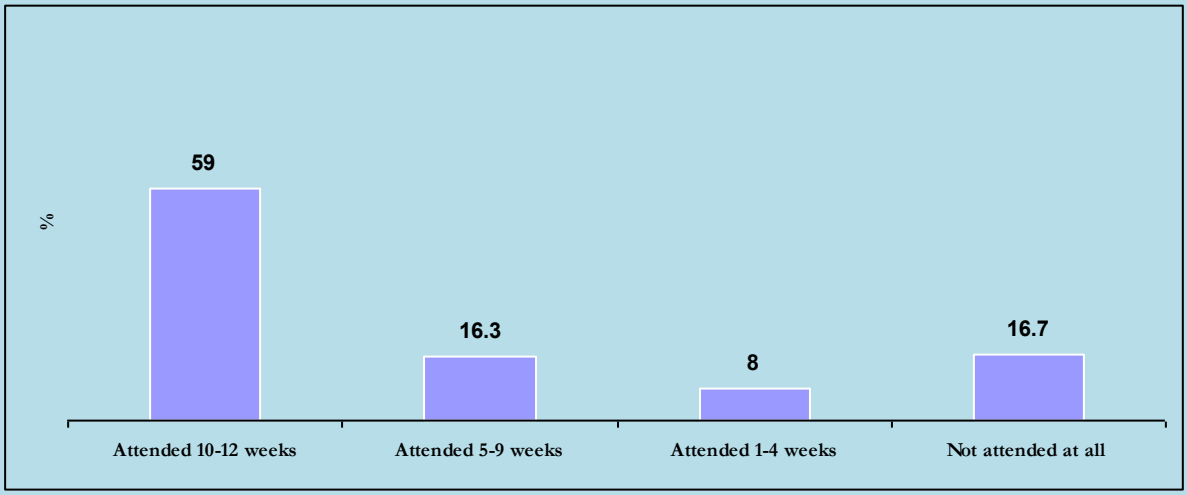
Attendance of the peer education sessions and duration:

Although we sampled sex workers' clusters that are fully covered by the HCP program intervention to serve the intervention arm, participation in the program by the individual sex workers cannot be assumed universal. This is because some sex workers might not participate at all in the HCP program for varying reasons. New sex worker could move to the establishments after the program phased-out from a particular location. In this study we asked sex workers residing in the intervention area whether they participated in the intervention program, especially with reference to the peer education program. If so, they were further asked the number of weeks they attended the peer educations sessions.

Figure 1 revealed that 83.3% of the respondents in the intervention area reported that they have attended at least one peer education session, signaling the high coverage of the HCP program intervention in its program area. In terms of the duration of attendance data show that the majority (59%) reported to have attended for 10-12 weeks, 16.3% for 5-9 weeks, 8% foe 1-4 weeks and 16.7% did not attend any session at all. Based on the number of weeks of attendance to the peer education sessions, we categorized the sex workers from the intervention area as having (1) high exposure (if attended 10-12 weeks), (2) moderate exposure (if attended 5-9 weeks) and (3) low exposure (if attended 4 or fewer weeks or not at all) to the HCP program intervention. This exposure category is subsequently used in this report to examine the dose-response relationships, if there is any, between the level of exposure to the program and key outcome indicators.

[21] the leaves of the shrub *Catha edulis* which are chewed like tobacco and has the effect of a *euphoric* stimulant

Figure 1. Among respondents from HCP program area (n=288), the percentage that attended the peer education sessions by the number of weeks of attendance, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010



As shown in Table 4 attendance of the peer education sessions tended to vary by town and type of sex work establishments. In general, sex workers in Addis Ababa have significantly better attendance to the peer education sessions. For instance, the proportion that attended 5-9 sessions was significantly higher in Addis Ababa at 20.3% vs. 10.8% in Adama. On the other hand, the proportion that did not attend any peer education session appeared to be more pronounced in Adama than in Addis Ababa (21.7% vs. 13.1%). Of note, there was no significant difference in the proportion having had high attendance between the two areas. Sex workers operating in big establishments were found to have significantly lower attendance to the peer education sessions compared to their counterparts in the small establishments. The proportion of sex workers that did not attend any session reported at 35.7% and 12.1%, respectively, in the big and small establishments. The proportion with moderate attendance was significantly higher among sex workers from small establishments at 18.5% compared to the 7.1% for the same among those from big establishments. No significant difference, however, was noted in the proportion having high attendance between sex workers in the two establishments. Older sex workers reported to have better attendance compared to their younger counterparts. The age difference in having high attendance of the peer education is marginally significant at p=0.1.

Table 4. Among respondents from HCP program area, the percentage that attended the peer education sessions (by the number of weeks of attendance), according to selected characteristics, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Not exposed	Low exposure (0-4 weeks)	Moderate exposure (5-9 weeks)	High exposure (10-12 weeks)	N
Place of residence					
Addis Ababa	13.1	7.1	20.3*[b]	59.5	168
Adama	21.7*[a]	9.2	10.8	58.3	120
Type of establishment					
Big	35.7**[c]	3.6	7.1	53.6	235
Small	12.1	9.1	18.5**[d]	60.3	53
Age					
15-17	26.3	10.5	15.8	47.4	19
18-20	20.8	9.1	20.8	49.4	77
21-24	15.5	2.8	16.9	64.8[+]	71
25+	14.0	9.7	14.0	62.3	121
Education					
Cannot read/write	18.2	13.6	6.8	61.4	44
Grade 1-6	15.6	10.1	21.1	53.2	109
Grade 7-9	19.4	6.1	13.3	61.2	98
Grade 10 +	10.8	0.0	21.6	67.6	37

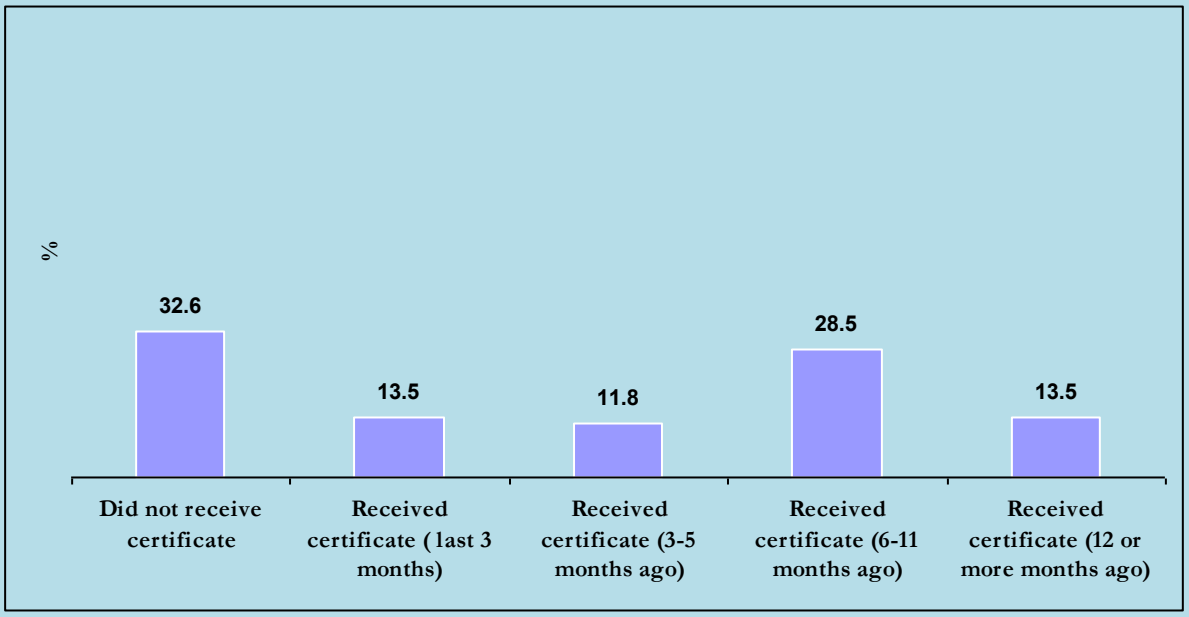
*[+]p=0.1, *p<0.05, **p<0.001; p-values compare – [a] between Addis Ababa & Adama for the non-exposed; [b] between Addis Ababa & Adama for those with moderate exposure; [c] between big and small establishments for the non-exposed; [d] between big and small establishments for those with moderate exposure*

Certification of attendance to the peer education sessions:

The HCP program intervention certifies sex workers for their attendance of a peer education session. In general, sex workers have to attend the sessions for 10 weeks and complete 8 topics to get certified. There are however some exceptions to this. In some instances sex workers could complete the 8 topics in two months or 8 weeks, and are eligible for certification. Some sex workers who were new to the establishments could join the peer education sessions without attending the few sessions at the beginning. These sex workers often are given brief orientation about the sessions they would miss and continue attending the other sessions. As a result, such sex workers would be certified without spending 10 weeks.

Respondents of this study were asked whether they had certificate of participation in the HCP program. For those who reported affirmatively to this question, they were further asked to report the data they received the certificate. Respondents were also asked whether they had certificate of participation in the HCP program. For those who reported affirmatively to this question, they were further asked to report the data they received the certificate. Figure 2 below indicates that 67.4% of the sex workers in the intervention area reported that they had received certificate of completed participation in the peer education sessions. Among those who claimed having a certificate, the date since certification varies from a year or more to less than 3 months. Of all respondents from the intervention area, 13.5% were certified in the last 3 months, 11.8% between 3-5 months ago and 28.5% between 6-11 months ago. Another 13.5% reported to have received their certificate 12 or more months ago.

Figure 2. Among respondents from HCP program area (n=288), the percentage distribution of respondents by their receipt of certificate and the months since certificate received, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010



3.5. HIV/AIDS and condom knowledge

In general HIV/AIDS knowledge reported to be significantly better among sex workers in the intervention areas than in the non-intervention (Table 5). Ever heard of HIV/AIDS and condom is universal in the intervention area (100%). This was a little bit lower at 97.6% and 97.9%, respectively, in the non-intervention area. Sex workers were asked what they think of the statement *"using condom every time reduces the chance of getting HIV"* - the vast majority from the intervention area (96.2%) reported affirmatively to this question. On the other hand, this was reported at 81.9% in the non-intervention area. The difference was statistically significant. Common misconception about HIV was also assessed. When asked whether a healthy looking person can have HIV, 76.4% and 63.2% of the sex workers in the intervention and non-intervention areas, respectively, believed so. Although sex workers in the intervention area appeared significantly better in dispelling this misconception, there are still about a quarter who didn't believe that such person can have HIV. Mosquito bite is not seen as a possible route of HIV transmission by 64.4% and 44.6% of the sex workers, respectively, in the intervention and non-intervention areas. Likewise, there is a substantial portion of the sex workers in both areas who held the belief that mosquito bite could transmit HIV.

Table 5. Percentage of respondents who heard about HIV/AIDS and condom, and those who reported correctly the ways of avoiding HIV/AIDS; and those who rejected some of the misconceptions surrounding HIV/AIDS, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

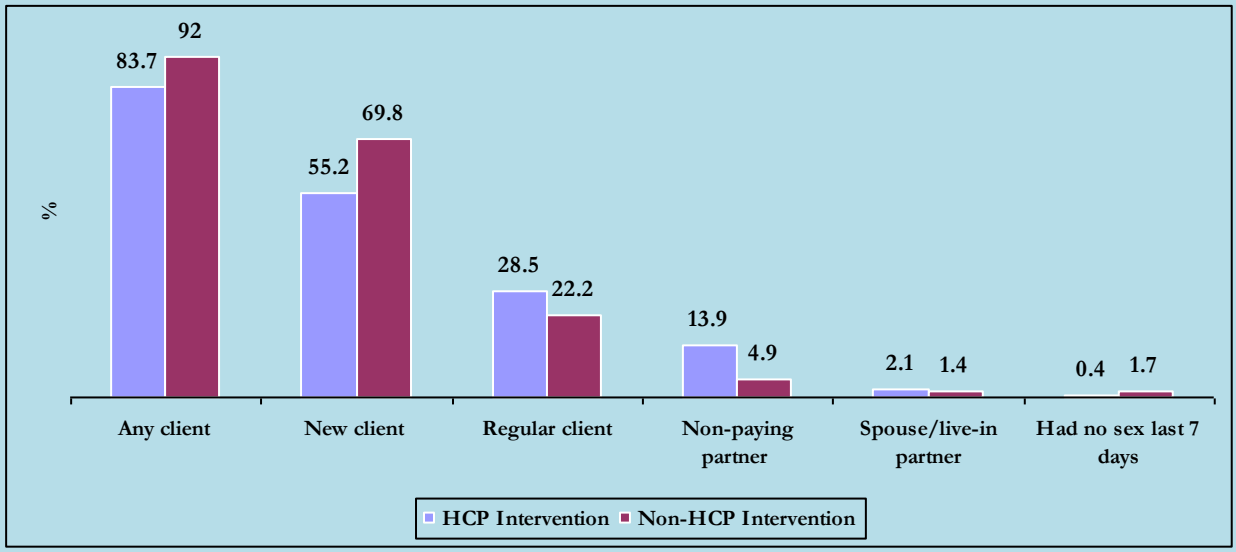
	HCP Intervention area n=288	Non-HCP intervention n=288	P-value
% Ever heard of HIV/AIDS	100.0**	97.6	p=0.008
% Ever heard of condom	100.0*	97.9	p=0.014
% who said people reduce their chances of getting HIV by:			
Using Condom every time they have sex	96.2***	81.9	p<0.000
Limiting sex to one uninfected partner	56.6	55.9	p=0.867
% who said			
A healthy looking person can have HIV	76.4***	63.2	p=0.001
HIV cannot be transmitted by mosquito bite	64.6***	44.6	p<0.000

**p<0.05; **p<0.01; ***p<0.001*

3.6. Sexual behaviors

Commercial sex workers were asked whether they had sex in the previous 7 days of interview and if so, they were further asked the type of their most recent sexual partner (Figure 3). Sexual partners to sex workers can be categorized into new paying clients, regular[22] paying clients and non-paying partners. The vast majority, 99.6% and 98.3% of them in the intervention and non-intervention areas, respectively, reported having had sex in the previous 7 days of interview. The most recent sex partner was reported new paying client by 55.2% and 69.8% of the CSWs in the intervention and non-intervention area, respectively. The corresponding figure for the reporting of regular paying clients was 28.5% and 22.8%, respectively. Nearly 14% of the CSWs in the intervention area reported their most recent sex partner in the previous 7 days was non-paying. This was reported significantly lower at 4.9% by CSWs in the non-intervention area.

Figure 3. Percentage of respondents who had sex in the previous 7 days according to the type of most recent sexual partner, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010



[22] Regular paying clients are those visiting sex workers frequently, i.e. at least once in a month

Table 6 presents the percentage of CSWs who had sex with regular paying clients in the previous 30 days and those with non-paying partners last year. The majority of the CSWs, 92.4% and 90.9%, respectively, in the intervention and non-intervention area reported having had a regular paying client in the previous 30 days. At least 7 regular paying clients in the previous 30 days were reported by 35.1% and 28.1% of the CSWs, respectively, in the intervention and non-intervention areas. This suggests the commonness of regular paying clients in both areas. Non-paying partners were also reported to be common in both areas. However, data show significantly more CSWs in the intervention area than in the non-intervention reported to have non-paying partners last year (60.1% vs. 49.3%).

Table 6. Percentage distribution of respondents according to the number of the number of regular paying clients in the last 30 days and the number of non-paying partner in the last years, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=288	Non-intervention n=288	P-value
Regular paying clients (last 30 days)			
% had sex with a regular paying client (last 30 days)	92.4	90.9	p=0.546
Number of regular paying clients (last 30 days):			
0	7.6	9.0	p=0.312
1	4.9	6.9	
2	5.9	9.7	
3	10.1	9.7	
4	10.4	9.4	
5	9.0	9.0	
6	2.4	5.2	
7+	35.1	28.1	
Do not remember	14.6	12.9	
Non-paying partners (last year)			
% had sex with a non-paying partner (last year)	60.1**	49.3	p=0.009
Number of non-paying partners (last year):			
0	39.9	50.7	p=0.08
1	50.4	41.3	
2+	7.3	5.9	
Do not remember	2.4	2.1	

***p<0.01*

3.7. Condom use

CSWs were asked whether they used condom with their most recent sex partner in the previous 7 days. As shown in Table 7, condom use with the most recent new client the previous 7 days reported to be universal at 100% and 99.5%, respectively, among CSWs in the intervention and non-intervention areas. Consistent condom use with all new paying clients in the previous 7 days also reported nearly universal at 98% by CSWs from both study areas. On the whole, condom use with paying clients did not significantly vary between CSWs in the intervention and non-intervention area.

Likewise, CSWs in both areas reported high condom use at 100% and 98.4%, respectively, with their most recent regular paying clients in the previous 7 days. When asked of their condom behavior with all regular paying clients in the previous 30 days, 98% and 91.5% of the CSWs in the intervention and non-intervention areas, respectively, reported that they had used condom with all regular paying clients in all sexual encounters.

Significant higher condom use with non-paying partners was noted among the CSWs in the intervention area than in the non-intervention. While 92.5% of the CSWs in the intervention area reported using condom with their most recent non-paying partner the previous 7 days, this was reported at only 64.3% by the CSWs in the non-intervention. Consistent condom use with all non-paying partners last year reported at 75.1% and 54.2%, respectively, in the intervention and non-intervention areas. This difference was statistically significant.

Table 7. Percentage distribution of respondents according to their condom use behaviors with new paying clients, regular paying clients and non-paying partners, Commercial CSWs in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area	Non-intervention	P-value
Condom use with NEW paying clients	n=159	n=201	
Among those whose last sex was with a new paying client (last 7 days), the percentage who used condom with that new paying client	100.0	99.5	p=0.373
Frequency of condom use with all (new) paying clients (last 7 days)	n=247	n=257	
Every time	98.8	98.0	p=0.626
Almost every time	0.4	1.2	
Sometimes	0.8	0.8	
Never	0.0	0.0	
Condom use with REGULAR paying clients			
Among those whose last sex was with a regular paying client (last 7 days), the percentage who used condom with that regular paying client	n=82 100.0	n=64 98.4	p=0.256
Frequency of condom use with all regular paying clients (last 30 days)	n=261	n=260	p=0.007
Every time	98.0**	91.5	
Almost every time	0.8	5.0	
Sometimes	1.2	3.1	
Never	0.0	0.4	
Condom use with non-paying partners	n=40	n=14	p=0.011
Among those whose last sex was with a non-paying partner (last 7 days), the percentage who used condom with that non-paying partner	92.5*	64.3	
Frequency of condom use with all non-paying partners (last year)	n=173	n=142	p=0.001
Every time	75.1***	54.2	
Almost every time	4.6	9.2	
Sometimes	5.2	7.8	
Never	15.0	28.9	

**p<0.05; **p<0.01; ***p<0.001*

3.8. Condom attitude and efficacy

Condom attitude:

There are common perceptions concerning condom that could influence negatively its use. Three common attitudinal questions on condom were asked to the CSWs in this study, as shown in Box 1. An index of condom attitude was created by combining these questions. The response categories were reversed so that high score reflects positive attitude towards condom. The score was dichotomized into low and high based on the mean value, as cut-off point. Those who scored high on the condom attitude index were considered to have positive attitude towards condom.

Box 1. Survey questions used to measure condom attitude and efficacy

Condom attitude

Each of the answer for the following statements is on the scale ranging from 1=strongly disagreed, 2=disagree, 3=neutral, 4-=agree and 5=strongly agree

1. Using condoms kills sex play
2. The sensory aspects (smell, touch, etc.) of condoms make them unpleasant.
3. Since most sex workers are already infected with HIV, there is no point in using condoms

Condom efficacy:

Each of the answer for the following statements will be on the scale ranging from 1= Not confident at all, 2=Not confident, 3=unsure, 4=confident, 5=highly confident

1. Get yourself a condom
2. Use a condom correctly
3. Use a condom every time you had sexual intercourse
4. Insist on condom use during sex even if the person you are having sex with does not want to use one
5. Refuse to have sex if the person you are having sex with will not use a condom
6. Say no to sex if you can't find condom
7. Say no to sex without condom even if it means losing your client/partner
8. Resist sex without condom if your client offers you more money to do it without condom
9. Refuse sex without condom if the person you are having sex with tries to take off the condom while in act of sex

When compared between the two study arms, significantly higher positive attitude towards condom can be noted among CSWs in the intervention areas than in the non-intervention. The corresponding percentage of CSWs who scored above the mean on the condom attitude index was 63.4% and 50.4%, respectively (Table 8).

A dose-response relationship can be noted between the level of exposure to the HCP intervention and the scoring of above the mean on the condom attitude index (Figure 4). The percentage that scored above the mean was 57.5% among those who did not at all exposed to the HCP program intervention. This was increased to 69.5% and 65.9%, respectively, among those having moderate and high exposure to the intervention. Low exposure to the intervention did not significantly carry higher attitude towards condom as compared to those with no exposure. Notably, the finding suggests that moderate exposure to the HCP intervention (i.e. attending peer education sessions for 5-9 weeks) appeared to be associated with the highest possible outcome in relation to attitude towards condom.

Condom efficacy:

Condom efficacy is the confidence in decision-making and control of one's behavior related to condom use. Several questions were asked to CSWs to measure their self-efficacy in relation to condom use. These questions were used to gauge condom efficacy of CSWs in pervious studies in Ethiopia[23,24] and elsewhere.

[23] Survey on MARPs in Amhara region. EPHA/CDC, 2008

[24] DKT Ethiopia. Survey on condom use in 10 major urban areas of Ethiopia. 2009

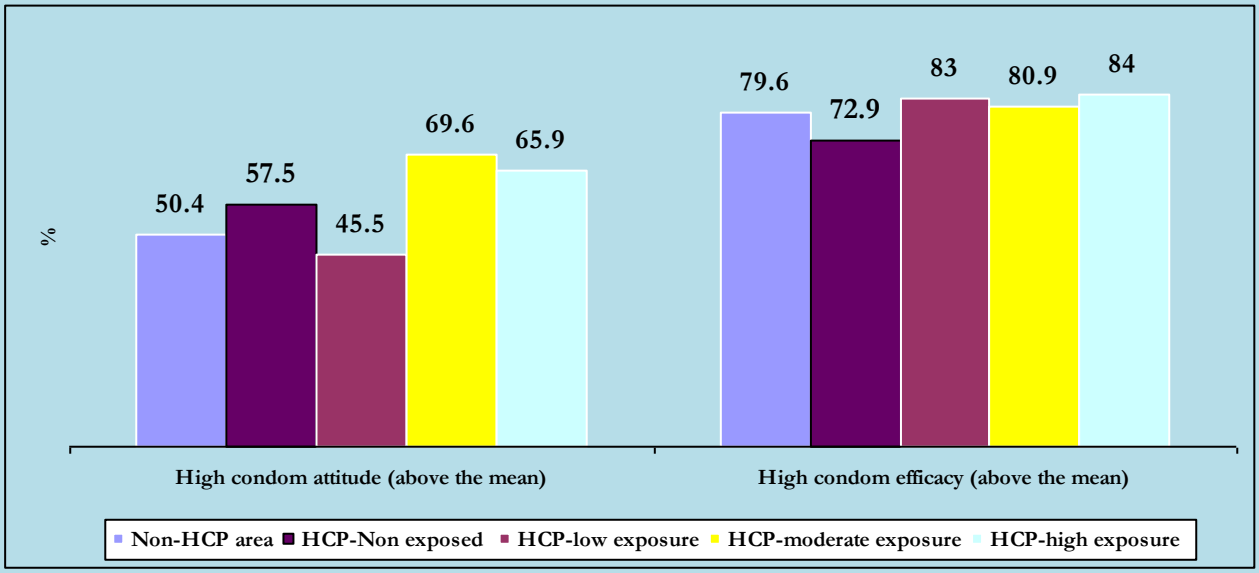
The finding on Table 8 suggests that condom efficacy of CSWs in both areas reported to be notably high. The percentage of CSWs who scored above the mean on the condom efficacy index was high and comparable between the intervention and non-intervention areas at 81.9% and 79.6%, respectively. However, the highest effect of the HCP intervention on condom efficacy, though not statistically significant, seems to occur among CSWs having had high exposure to the program intervention where the proportion who scored above the mean reached at 84% (Figure 4).

Table 8. Mean scores and the percentages that scored above the mean on the condom attitude and efficacy indices, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=279[a]	Non-intervention n=258 [a]	P-value
Condom attitude index:			
Mean [95% CI] score for condom attitude	11.5(11.2-11.7)***	10.4(10.2-10.7)	p<0.000
% who scored above the mean	63.4**	50.4	p=0.002
Condom self-efficacy index	34.8(34.5-35.2)	34.7(34.3-35.1)	p=0.714
Mean [95% CI] score for condom self-efficacy	81.9	79.6	p=0.499
% who scored above the mean			

[a] *missing cases excluded; Scale reliability coefficient for condom attitude 0.64; Scale reliability coefficient for condom efficacy 0.89*
**p<0.05; **p<0.01; ***p<0.001*

Figure 4. Percentage of respondents who scored above the mean on the condom attitude and efficacy indices according to their level of exposure to the HCP program intervention, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010



3.9. Condom access and possession

Table 9 presents data on condom source, time to get condom and the number of condoms possessed by CSWs at the time of interview. These were compared between the intervention and non-intervention areas. Different sources for condom were spontaneously reported by CSWs in both study arms. In general CSWs in the intervention area reported significantly more sources of condoms than those in the non-intervention. Shops/Kiosks appeared by far the leading source for

condom among CSWs in both study arms at over 92%. Peer educators were reported the second leading sources of condom, as reported by 82.3% of the CSWs in the intervention area. This was much lower at 4.9% in the non-intervention area. Sharing condom with fellow CSWs was also reported by 69.8% of the CSWs in the intervention area. The reporting for the same was significantly lower at 47.6% in the non-intervention. Significantly more CSWs in the intervention area than in the non-intervention reported bars/hotels as sources for condom (36.8% vs. 12.2%). The reporting of health institution as source of condom was also significantly higher in the intervention area at 47.6% than in the non-intervention at 29.9%. Comparable proportion of CSWs in both study arms reported Pharmacy and establishment owners among condom sources.

Condom access appears high in both the intervention and non-intervention areas. Over 81% of the CSWs from both study arms reported to spend less than 5 minutes to get condom from the nearest sources. CSWs were also asked if they possessed any condom at the time of interview and, if so they were further asked the number of condoms (in pieces) they possessed. On the whole, CSWs in the intervention areas reported to possess significantly more pieces of condoms than those in the non-intervention at the time of interview. About 93% and 82% of the CSWs in the intervention and non-intervention areas, respectively, reported to posses at least one condom. The corresponding mean numbers of condoms reported by CSWs in the intervention and non-intervention area was 47 and 17 pieces, respectively.

Table 9. Percentage distribution of respondents according to their condom sources, time to the nearest condom source and the mean numbers of condoms possessed, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=288	Non-intervention n=288	P-value
Source of condom			
Shop/Kiosk	92.7	94.1	p=0.502
Pharmacy	44.0	44.1	p=0.674
Health institution/Health workers	47.6***	29.9	p<0.000
Fellow CSW	69.8***	47.6	p<0.000
Peer educator	82.3***	4.9	p<0.000
Establishment owner	24.7	24.7	p=1.000
Bar/guest house/hotel	14.2	14.6	p=0.906
Community workers	36.8***	12.2	p<0.000
Time to nearest condom source			
Under 5 minutes			
5-15 minutes	81.3	81.6	p=0.04
Over 15 minutes	17.0	13.2	
	1.7	5.2*	
Number of condoms in room/on-hand/pocket/wallet			
None	6.9***	18.4	p<0.000
Mean (95% CI) numbers of condoms	46.9(38.9-54.9)***	17.3(13.9-20.6)	p<0.000

**p<0.05; **p<0.01; ***p<0.001*

3.10. Factor influencing condom use

Table 10 presents two multivariate logistic regression models to examine the factors influencing condom use with regular paying clients and non-paying partners. The primary purpose of these analyses is to examine the net effect of the HCP program intervention on condom use after controlling for CSWs' age, education, and number of children living together, duration in sex work, duration in current place of residence, place of residence, type of establishment, condom attitude and efficacy. We have shown in Table 1 above that these characteristics differed notably and significantly between the intervention and non-intervention areas and that they could play confounding roles.

The first multivariate model in Table 10 suggests the lack of a significant net effect of the HCP program intervention on condom use with regular paying clients. The gross effect of the HCP program intervention on condom use with regular paying clients in the Univariate analysis waned after adjusting for a number of confounding factors including condom attitude and efficacy. Irrespective of their exposure to the HCP program intervention and their background and other characteristics, those CSWs who held high positive attitude and efficacy in relation to condom exhibited higher likelihood of using condom with all regular paying clients.

Nevertheless, in the model that excluded condom attitude and efficacy (data not shown), the HCP intervention tended to have a net effect on condom use with regular paying clients (β [se]=1.15 [0.47], p=0.015). It may well be that the program influenced condom use of CSWs with regular paying clients through improving their condom attitude. In the aforementioned analysis we have seen that the program significantly impacted condom attitude but not condom efficacy of CSWs.

The significant effect of the HCP program intervention on consistent condom use with non-paying partners persisted in the multivariate models that adjusted for the aforementioned variables. This confirms the net effect of the program intervention in improving CSWs' condom behavior with their non-paying partners. High positive condom attitude and efficacy appeared to predict high likelihood of condom use with non-paying partners. The same analysis also shows that CSWs having at least one child living together tended to exhibit a lower likelihood of using condoms with non-paying partners compared to those with no child living with them. When condom attitude and efficacy are removed from the model, younger CSWs (15-17 years) were in particular found to have lower likelihood of using condom with non-paying partners (Data not shown). These young girls in turn have significantly lower condom efficacy.

Table 10. Multivariate Logistic Regression coefficients [β] and standard errors [se] in the estimation of consistent condom use with all regular paying clients (last 30 days) and all non-paying partners (last year), according to selected variables, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Condom use with all Regular paying clients (last 30 days) β [se] n=518	Condom use with all non-paying clients (last year) β [se] n=315
Study area		
Non-Intervention area (Ref)	0.0	0.0
HCP Intervention area	0.86(0.49)	0.75(0.32)*
Age		
15-17 (ref)	0.0	0.0
18-20	-0.218(0.79)	0.984(0.56)
21-24	0.177(0.85)	0.528(0.57)
25+	-0.258(0.91)	0.713(0.60)
Education		
Cannot read/write (Ref)	0.0	0.0
Grade 1-6	0.119(0.58)	0.16(0.45)
Grade 7-9	0.184(0.65)	-0.01(0.48)
Grade 10 +	-0.552(0.75)	-0.078(0.56)
Children living together		
0 (ref)	0.0	0.0
1+	-0.53(0.60)	-0.99(0.36)**
Participate in other income generating activities		
Yes (Ref)	0.0	
No	-0.812(0.59)	0.0
		0.36(0.44)
Duration in sex work (with an increase of one year)	0.044(0.063)	
		0.027(0.039)
Duration in current residence (with an increase of one year)	0.002(0.03)	-0.014(0.018)
Place of residence		
Addis Ababa (Ref)	0.0	0.0
Adama	-0.27(0.57)	0.431(0.33)
Type of establishment		
Big (Ref)	0.0	0.0
Small	0.34(0.59)	0.434(0.37)
Condom attitude score		
Low (ref)	0.0	0.0
High (>mean score)	1.17(0.49)*	0.89(0.28)**
Condom efficacy score		
Low (ref)	0.0	0.0
High (>mean score)	1.87(0.46)***	1.69(0.32)***

*Ref=reference category; CI=confidence interval; se=standard error, *p<0.05; **p<0.01; ***p<0.001*

As noted in Figure 5, there appears a dose-response relationship between exposure to the HCP program intervention and consistent condom use with regular paying clients and non-paying partners. The relationship is however more vivid with non-paying partners although there is a threshold effect associated with moderate exposure. The highest condom use with non-paying partners is associated with moderate exposure to the intervention (81.8%). It is unknown as to why condom use with non-paying partners dropped among those highly exposed to the intervention.

There could be some uncontrolled confounding factors that altered this relationship. An interesting finding can be noted when the proportion having had consistent condom use with non-paying partners compared between the non-HCP intervention area and those in the intervention but with no exposure to the HCP intervention. The data on Figure 5 showed that condom use with non-paying partner was significantly higher at 74.1% among those from the non-intervention who were not exposed to the intervention compared to 52.7% among those in the non-HCP intervention area. This may signal the possible spillover effect of the HCP program intervention in the target population.

Figure 5. Percentage of respondents who used condom with all regular paying clients (last 30 days) and those who used condom with all non-paying partners (last year) according to their level of exposure to the HCP program intervention, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

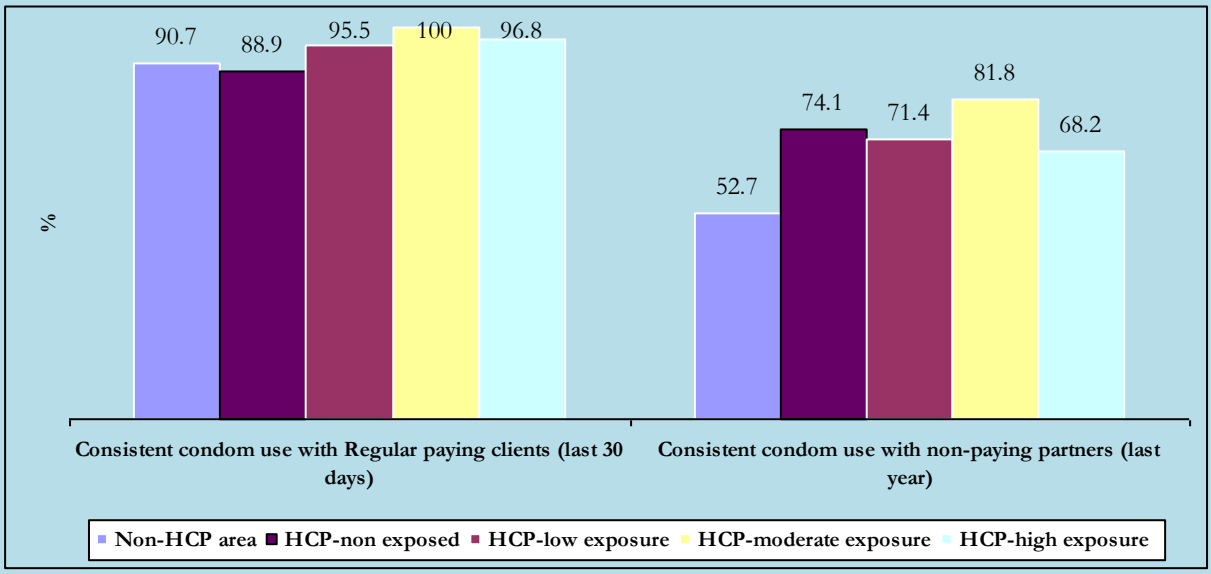
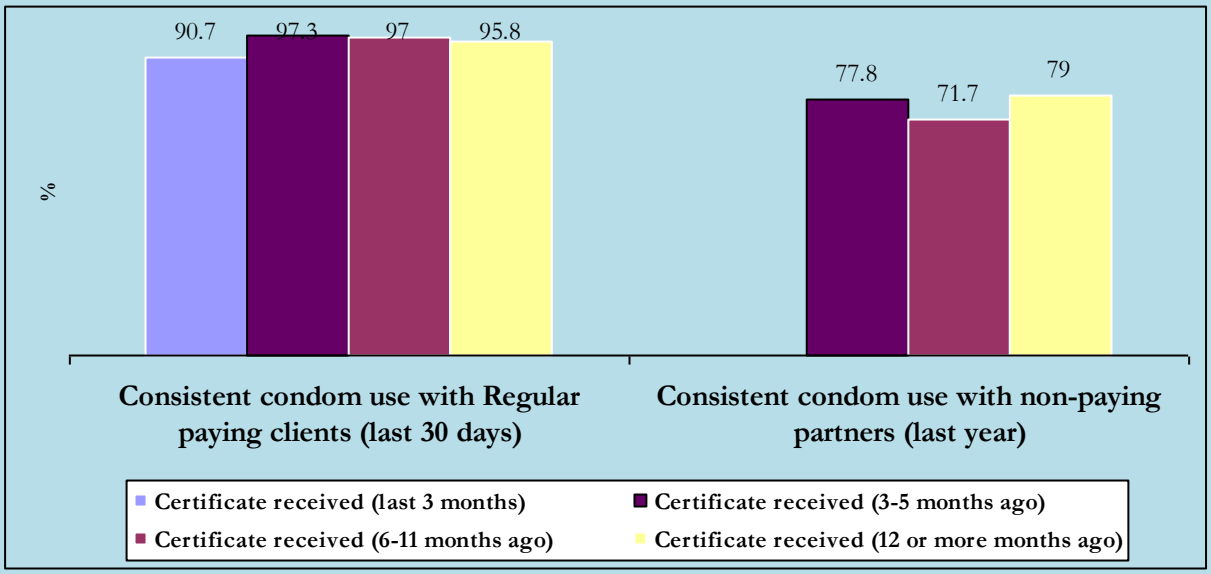


Figure 6 presents time since certification and condom use behavior with regular paying clients and non-paying partners among CSWs that reported having had certificate of participation. The primary purpose of this analysis is to examine whether CSWs maintain their good behavior months or years after attendance in the program. The 30-day reference period for condom use with regular paying clients allowed better investigation of this association. On the other hand, the association between consistent condom use with non-paying partners (last year) and time elapsed since certification is difficult to interpret since the indicator measures condom use behavior over a one year period. We excluded those CSWs who have been certified less than 3 months ago from the analysis because the one year reference period for the condom use with non-paying partners also encompassed the time before such CSWs attended the peer education sessions.

We didn't find any significant association between consistent condom use either with regular paying clients or with non-paying partners and the time since certification. Consistent condom use with regular paying clients was 90.7% among those who received their certificate in the last 3 months. This was 97.3%, 97% and 95.8%, respectively, among those who reported being certified in the previous 3-5 months, 6-11 months, and 12 or more months. With the caveat of the limitations, the lack of association between time since certification and condom use with non-paying partners was also noted. Findings thus somehow suggest the sustainability and maintenance of condom use behavior with regular paying clients and non-paying partners months and even few years after certification.

Figure 6. Among certified CSWs in the HCP intervention area, the percentage who used condom with all regular paying clients (last 30 days) and those who used condom with all non-paying partners (last year) according to the time since certification, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010



3.11. Sexually transmitted diseases (STDs)

Knowledge of STDs

We measured knowledge about STDs by asking two questions (1) *"have you heard of a disease that could transmit through sexual intercourse other than HIV"* and (2) *"what are the symptoms of STDs"*. The second question was based on spontaneous responses.

On the whole, the data shows CSWs in the intervention area are better informed and knowledgeable about STDs than those in the non-intervention areas (Table 11). The proportion that ever heard of STDs was nearly universal at 97.2% among CSWs in the intervention area. This was significantly lower at 73.3% in the non-intervention. In terms of knowledge of STD symptoms, out of 8 major symptoms, CSWs in the intervention area reported 4 symptoms on average. This was significantly higher than an average of 2 STD symptoms reported by their non-intervention counterparts. We compared the proportion who reported at least one correct STD symptom between the two study arms. About 96% of the CSWs in the intervention and 63.5% in the non-intervention spontaneously reported at least one correct symptom of STD, and the difference was statistically significant. Common symptoms reported in both study arms, in order of occurrence, include genital discharge, foul smelling discharge, itching in genital area, genital ulcer, genital rash, and pain/burning during urination. Lower abdominal pain and swelling in groin were rarely reported by CSWs in both study arms.

The multivariate analysis in Table 13 confirms the net effect of the HCP program intervention in improving CSWs' knowledge of STD symptoms. Other factors significantly and independently predicting CSWs' knowledge of STD symptoms are age, education and duration in current residence (Table 13). There appears a positive dose-response relationship between age and the reporting of STD symptoms. Younger CSWs (age 15-17 years) appeared less informed about STD symptoms. Higher education tended to be associated with better knowledge of STDs. In particular, the analysis show that CSWs with no education or having only elementary schooling (1-6 Grade) were less likely than the better educated to know STD symptoms. A positive relationship between longer duration

in current residence and the likelihood of knowing STD symptoms has also emerged from the same multivariate model.

A dose response relationship between exposure to the HCP intervention and knowledge of STD symptoms is also quite vivid, as shown in Figure 7. Even low exposure to the HCP program intervention results in notable increase in the knowledge of STD symptoms, as compared to the non-intervention area (91.3% vs. 63.5%). The reporting of at least one STD symptom appeared the highest (over 97%) among CSWs with moderate and/or high exposure to the intervention. Figure 7 also reveals a possible spillover effect of the HCP intervention on STD knowledge of CSWs. The proportion who reported at least one STD symptoms among those in the non-HCP intervention area was 63.5% and this was significantly lower than 89.6% reported by those in the intervention who were not exposed to the intervention.

Table 11. Percentage of respondents who heard about sexually transmitted diseases (STD), those who reported different STD symptoms; and the mean numbers of STD symptoms reported, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=288	Non-intervention n=288	P-value
% Ever heard of STDs	97.2***	73.3	p<0.000
% who heard of the following STD symptoms			
Genital discharge	67.4***	28.8	p<0.000
Lower abdominal pain	16.3**	7.6	p=0001
Foul smelling discharge	66.0***	34.4	p<0.000
Genital ulcer	58.7***	29.2	p<0.000
Genital rash	49.3***	17.4	p<0.000
Pain/burning during urination	59.7***	34.0	p<0.000
Swelling in groin/genital area	31.9***	11.5	p<0.000
Itching in genital area	61.8***	35.8	p<0.000
Mean (95% CI) numbers of STD symptoms known/reported	4.1 (3.9-4.3)***	2.0(1.8-2.2)	p<0.000
% who know at least one symptom	95.5***	63.5	p<0.000

**p<0.05; **p<0.01; ***p<0.001*

Attitude towards seeking care for STD

Box 2. Survey questions used to measure attitude towards seeking care for STD

Each of the answer for the following statements is on the scale ranging from 1=strongly disagreed, 2=disagree, 3=neutral, 4-=agree and 5=strongly agree

1. It is important for a sex worker to go to a health facility if she sees signs of sexually transmitted infections.
2. It is important for a sex worker go to a health facility frequently for regular check up, even if she is not sick.
3. A sex worker should not waste her money going to a health facility for regular check-ups when she is not sick.
4. A sex worker should not waste her time going to a health facility for regular check-ups when she is not sick.

We asked CSWs of their attitude towards seeking care for STD in different circumstances. As shown in Box 2, four sets of question were used to create an index of attitude for seeking STD care. The responses for questions 3 and 4 in Box 2 were reversed so that higher scores reflect positive attitude towards seeking care for STD.

One of the intervention focuses of the HCP program intervention is to improve CSWs attitude and acceptance of regular checkup for STDs in health facilities. The program also works with the Family Guidance Association of Ethiopia (FGAE) clinic on referral service for STDs diagnosis and treatment.

Table 11 signals the significant gross effect of the HCP intervention in brining about positive attitudinal change towards seeking care for STD. A high percentage (85.1%) of the CSWs in the intervention area scored above the mean on the index measuring attitude towards seeking care for STD. The corresponding percentage in the non-intervention was significantly lower at 56.9%.

Table 12. Mean scores and the percentages that scored above the mean on the score measuring attitude towards seeking care for STD, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=281[a]	Non-intervention n=267 [a]	P-value
Mean [95% CI] score for attitude towards seeking care for STD	14.7(14.5-15.0)***	12.9(12.7-13.2)	p<0.000
% who scored above the mean	85.1***	56.9	p<0.000

[a] *missing cases excluded; Scale reliability coefficient for attitude towards seeking care for STD= 0.73; ***p<0.001*

The noted gross effect of the intervention on STD treatment seeking attitude did not alter after adjusting for several factors, as shown in Table 13. This suggests a significant net effect of the HCP program intervention in improving CSWs' attitude towards seeking care for STD.

Higher education tended to have a marginal effect on having positive attitude towards seeking care for STD (Table 13). Besides, those CSWs who reported being engaged in other income generating activities, on top of sex work, tended to hold positive attitude towards seeking care for STD.

The proportion that scored above the mean on the STD care seeking attitude index was only 56.9% in the non-intervention area. This was increased to 69.8%, 90%, 80% and 90.4%, respectively, among CSWs having no exposure, low, moderate and high exposure to the HCP program intervention (Figure 7). Of note, low exposure to the intervention appeared to have significant effect on STD care seeking attitude compared to the non-intervention area and those in the intervention who did not participate in the intervention.

Figure 8 compares knowledge of and attitude towards care seeking for STD among those CSWs with varying dates since certification. In general, no temporal trend was noted by date of certification for both indicators, somehow suggesting the perseverance of STD knowledge and positive attitude towards seeking care for STD several months or even years after participated in the program.

Table 13. Multivariate Regression coefficients [β] and standard errors [se] in the estimation of the odds of knowing at least one STD symptoms correctly (Logistic regression) and positive attitude towards seeking treatment for STD (OLS regression), according to selected variables, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Know at least one STD symptoms known/reported: Logistic Regression β [se] n=576	Positive attitude towards seeking care for STD: OLS regression β [se] n=548
Study area		
Non-Intervention area (Ref)	0.0	0.0
HCP Intervention area	2.4(0.38)***	1.32(0.21)***
Age		
15-17 (ref)	0.0	0.0
18-20	1.84(0.47)***	0.204(0.38)
21-24	2.32(0.51)***	0.311(0.39)
25+	2.02(0.52)***	0.436(0.41)
Education		
Cannot read/write (Ref)	0.0	0.0
Grade 1-6	0.54(0.29)	-0.011(0.25)
Grade 7-9	1.15(0.37)**	0.52(0.28)+
Grade 10 +	1.57(0.63)*	0.68(0.37) +
Children living together		
0 (ref)	0.0	0.0
1	-0.39(0.39)	-0.02(0.27)
2+	-0.46(0.73)	-0.08(0.45)
Participate in other income generating activities		
Yes (Ref)	0.0	0.0
No	0.168(0.35)	0.65(0.29)*
Duration in sex work (with an increase of one year)	-0.029(0.033)	0.04(0.02)
Duration in current residence (with an increase of one year)	0.051(0.02)*	0.02(0.01)
Place of residence		
Addis Ababa (Ref)	0.0	0.0
Adama	-0.49(0.35)	-0.102(0.23)
Type of establishment		
Big (Ref)	0.0	0.0
Small	-0.197(0.35)	0.466(0.26)

*Ref=reference category; CI=confidence interval; se=standard error, +p=0.064, *p<0.05; **p<0.01; ***p<0.001*

Figure 7. Percentage of respondents who knew at least one correct symptom of STD and those who scored above the mean on the index measuring attitude towards seeking care for STD according to their level of exposure to the HCP program intervention, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

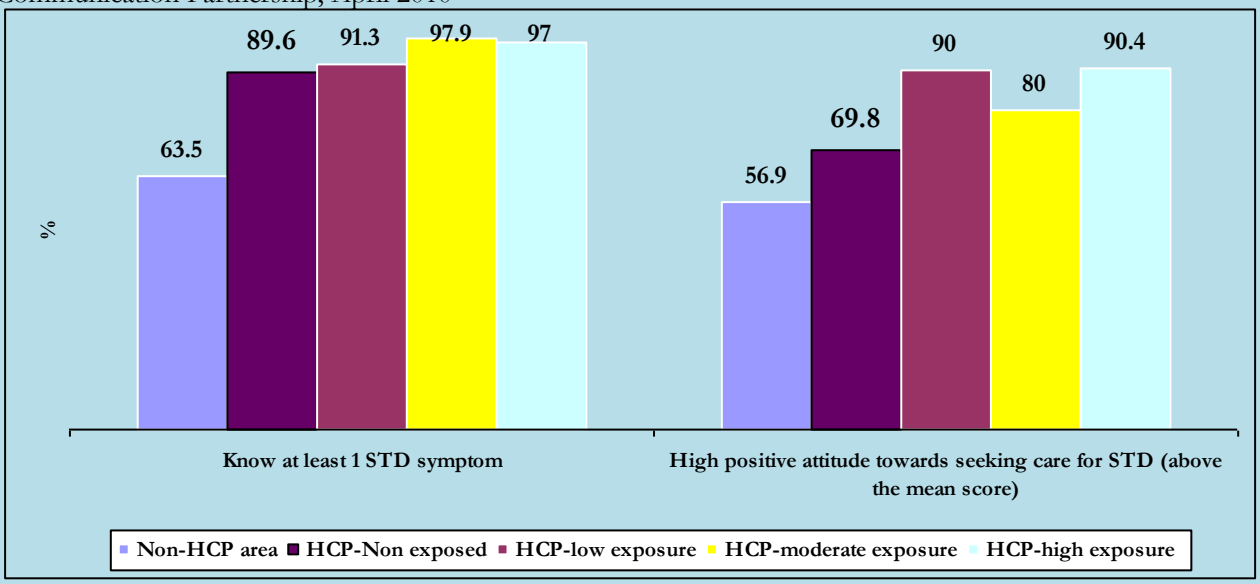
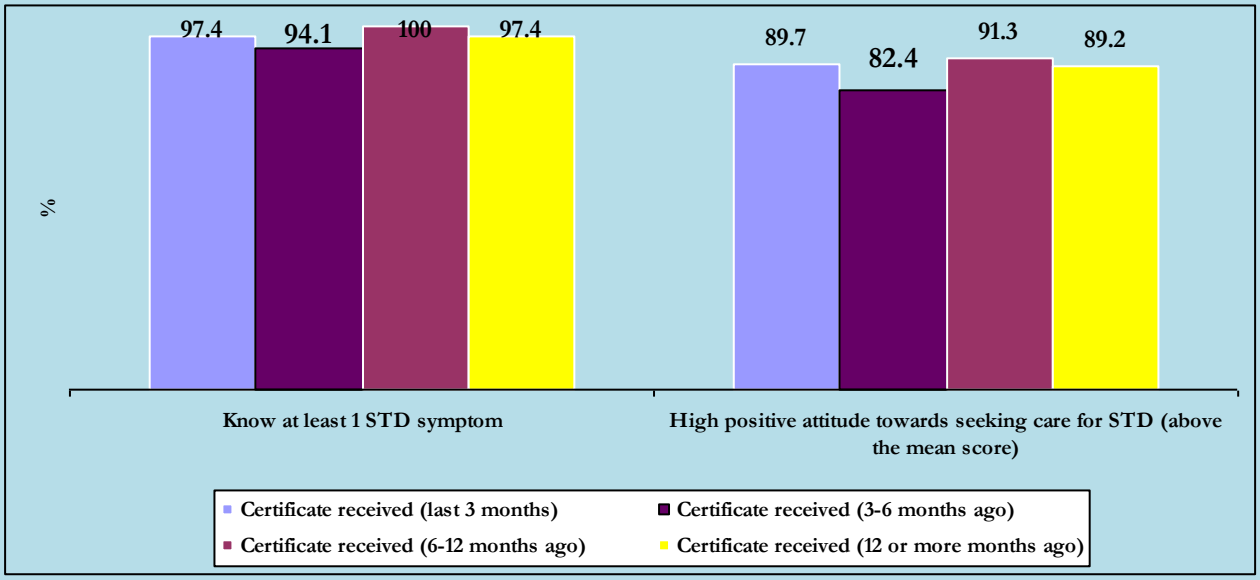


Figure 8. Among certified sex workers in the HCP intervention area, the percentage who knew at least one correct symptom of STD and those who scored above the mean on the index measuring attitude towards seeking care for STD according to the time since certification, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010



Incidence of STD (previous 6 months)

CSWs were asked if they had any of the common symptoms of STD during the previous 6 months of the interview. As shown in Table 14, different STD symptoms were reported by CSWs, the commonest of all being lower abdominal pain in both study arms. This was followed by pain/burning during urination, foul smelling discharge, genital discharge and itching in genital areas. On the whole, 23.6% and 20.1% of the CSWs in the intervention and non-intervention areas, respectively, reported to have at least one STD symptoms during the previous 6 months. There is no significant difference in the reporting of STD symptoms between CSWs in the intervention and non-intervention areas.

Table 14. The percentage respondents who reported having had STD symptoms (by type of symptom) in the six months preceding the interview, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=288	Non-intervention n=288	P-value
STD Symptoms reported (last 6 months):			
Genital discharge	9.0	7.2	p=0.447
Lower abdominal pain	15.6	10.4	p=0.06
Foul smelling discharge	9.0	8.0	p=0.654
Genital ulcer	3.8	5.6	p=0.324
Genital rash	5.9	5.2	p=0.716
Pain/burning during urination	10.4	9.0	p=0.574
Swelling in groin/genital area	3.8	3.1	p=0.649
Itching in genital area	7.6	6.3	p=0.512
At least one STD symptom (last 6 months)	23.6	20.1	p=0.313

Seeking care/treatment for STD (previous 6 months)

Those who reported to have had at least one STD symptom were asked whether they sought treatment in the health facilities. Table 15 revealed significantly higher treatment seeking for STD among CSWs in the intervention area than in non-intervention – 79.4% vs. 63.8%, respectively.

Figure 9 attempts to associate exposure to the HCP program intervention and treatment seeking for STD. It appears that low exposure to the intervention did not bring about any significantly improvement in treatment seeking compared to the non-intervention area (63.8% vs. 70%). However, there is clear effect of moderate or high exposure to the HCP intervention in treatment seeking for STDs. The percentage who sought care for STD were 92.3% and 85.7%, respectively, among those with moderate and high exposure to the intervention.

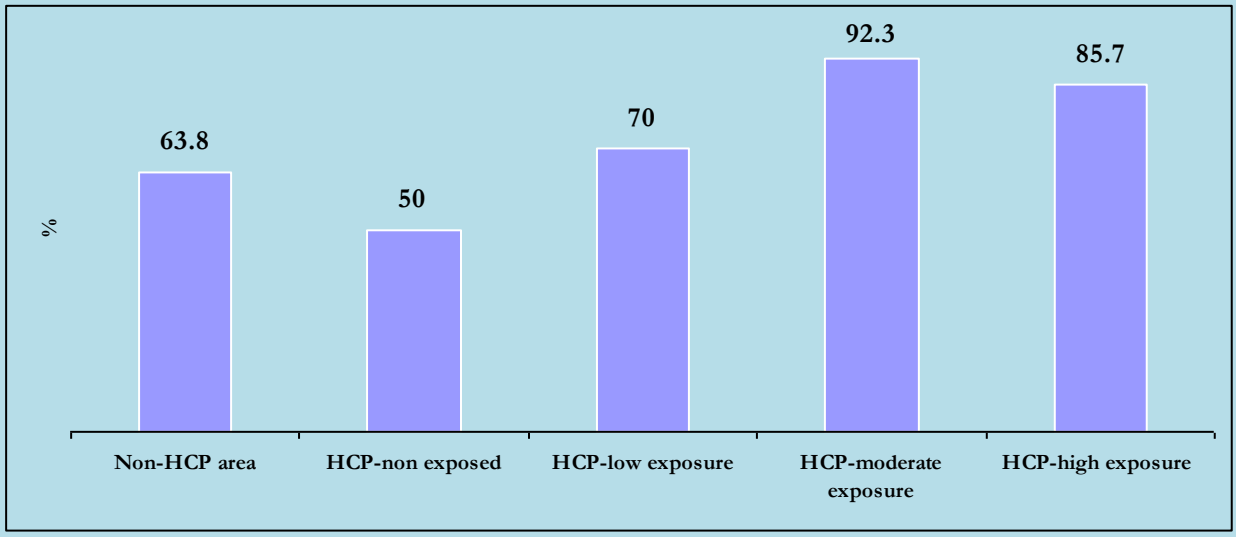
Among those CSWs from the intervention area that sought care for STD, most (42.6%) reported receiving the care from the FGAE clinic. Only 5.4% of the CSWs from the non-intervention sought treatment in the FGAE clinic. The fact that the FGAE clinic emerged as the leading places for STD care/treatment for CSWs in the intervention area signals the effectiveness of the STD referral linkage between the HCP program intervention and the FGAE clinic. Other places frequently sought in both the intervention and non-intervention areas were government heath centers and government hospital. Of note, private clinic emerged the second most frequented place for STD treatment for CSWs in the non-intervention area at 29.7% compared to 1.9% for the same in the intervention.

Table 15. Among those who reported having had at least one STD symptoms during the six months proceeding the interview, the percentage that sought treatment in the health facilities (by type of facility), Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=68	Non-intervention n=58	P-value
% who sought care in health facility (last 6 months)	79.4*	63.8	p=0.051
Type of health facility visited (last 6 months)	n=54	n=37	
Government Health center	33.3	37.8	p=0.658
Government Hospital	13.0	13.5	p=0.939
Private hospital	0.0	8.1*	p=0.03
Private clinic	1.9	29.7***	p<0.000
FGAE clinic	42.6***	5.4	p<0.000
Place not mentioned	9.2	5.5	p=0.456

**p<0.05; ***p<0.001*

Figure 9. Percentage of respondents who sought STD treatment in health facilities according to their level of exposure to the HCP program intervention, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010



3.12. Self-esteem and-efficacy

The HCP program intervention focuses, among others, on improving psychological entities of CSWs including self-esteem and self-efficacy.

Self-esteem[25] is defined based on the notion that everyone has an intrinsic 'value' that they feel they are worth and as human beings we constantly strive to improve or increase that value. Self-esteem is related to the ego and those with 'low self-esteem' are said to be suffering from an 'inferiority complex'. In practical terms, people with better self-esteem generally feel worthy of a good life and all that entails while those with low self-esteem feel they are of less value.

Self-efficacy[26] is the confidence in decision-making and control of one's life situation.

[25] http://ezinearticles.com/?What-is-Self-Esteem-Theory?&id=2190958

[26] Samuels, Fiona, Pertti Pelto, Ravi Verma, and C. K. George. 2006. "Social capital and HIV risk behavior among female sex workers and men who have sex with men in Andhra Pradesh: Insights from quantitative and qualitative data," Horizons Research Update. Washington, DC: Population Council.

In this evaluation study, for each theme we pose a set of questions that were grouped to form an index of score. Respondents' scores for each index were dichotomized into low and high. Those who scored high on an index were considered to have greater self-esteem or self-efficacy than those who scored low. High scores in the indexes defined as having score values above the mean. Few selected questions were forwarded to CSWs to measure their self-esteem and self-efficacy (Box 3). We understand that survey questions can only provide a partial picture of such psychological entities. With this caveat, Table 16 compares summary index scores that measure self-esteem and self-efficacy between respondents in the intervention and non-intervention areas. Some of the response categories were reversed so that high score reflects high self-esteem (questions # 2, 5 and 6) and efficacy (questions # 2).

Box 3. Survey questions used to measure self-esteem and self-efficacy

Each of the answer for the following statements are on the scale ranging from *1=strongly disagreed, 2=disagree, 3=neutral, 4-=agree and 5=strongly agree*

Self-esteem questions

1. On the whole, I am satisfied with myself.
2. At times I think I am no good at all.
3. I feel that I have a number of good qualities.
4. I like the way I look.
5. I wish I were somebody else.
6. All in all, I am inclined to feel that I am a failure

Self-efficacy questions

1. I have control over the decisions that affect my life.
2. I do not know how I would like my life to be in the future.
3. I believe I can reach my future goals.
4. I am able to protect myself from harm

The Univariate analysis in Table 16 presents the gross effect of the HCP intervention on CSWs' self-esteem and self-efficacy. Findings show that CSWs in the intervention area have scored significantly higher in the self-esteem and self-efficacy indices compared to their non-intervention counterparts. The proportion that scored above the mean on the self-esteem index was 51.2% in the intervention area, which is significantly higher than the 34.1% in the non-intervention. Likewise, CSWs in the intervention area exhibited significantly higher self-efficacy than those in the non-intervention (55.8% vs. 35%).

As shown in Figure 10, there is a positive relationship between self-esteem/self-efficacy and exposure to the HCP program intervention. The lowest self-esteem score was recorded among CSWs in the non-intervention area at 34.1%. This was followed by 38.3% and 47.8%, respectively, for those in the intervention area having no and low exposure to the intervention. The highest threshold was noted for those moderately exposed to the intervention at 56.5%. High exposure to the intervention did not significantly carry better self-esteem score, suggesting that moderate exposure to the HCP intervention may suffices to induce a high self-esteem among CSWs. Of note, the data show that low exposure to the HCP intervention appeared to have brought about significant improvement in self-esteem compared to the non-intervention area.

Unlike the self-esteem score, there is a clear dose-response relationship between exposure to the intervention and high self-efficacy score. Low exposure to the HCP intervention also carries better self-efficacy score than the non-intervention (43.5% vs. 35%). The proportion that scored above the mean on the self-efficacy index was 57.5% and 63.9%, respectively, among those CSWs who had moderate and high exposure to the HCP program intervention (Figure 10).

Table 16. Mean scores and the percentages that scored above the mean on the self-esteem and self-efficacy indices, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=283[a]	Non-intervention n=279 [a]	P-value
Self-esteem index:			
Mean [95% CI] score for self-identity/esteem[+]	20.3(19.9-20.7)**	19.6(19.2-19.9)	p=0.006
% who scored above the mean	51.2***	34.1	p<0.000
Self-efficacy index:			
Mean [95% CI] score for self-efficacy [++]	15.5(15.3-15.7)***	14.7(14.5-14.9)	p<0.000
% who scored above the mean	55.8***	35.0	p<0.000

[a] *Missing cases excluded; [+]Scale reliability coefficient for self-esteem=0.57; [++]Scale reliability coefficient for self-efficacy=0.58*
***p<0.01; ***p<0.001*

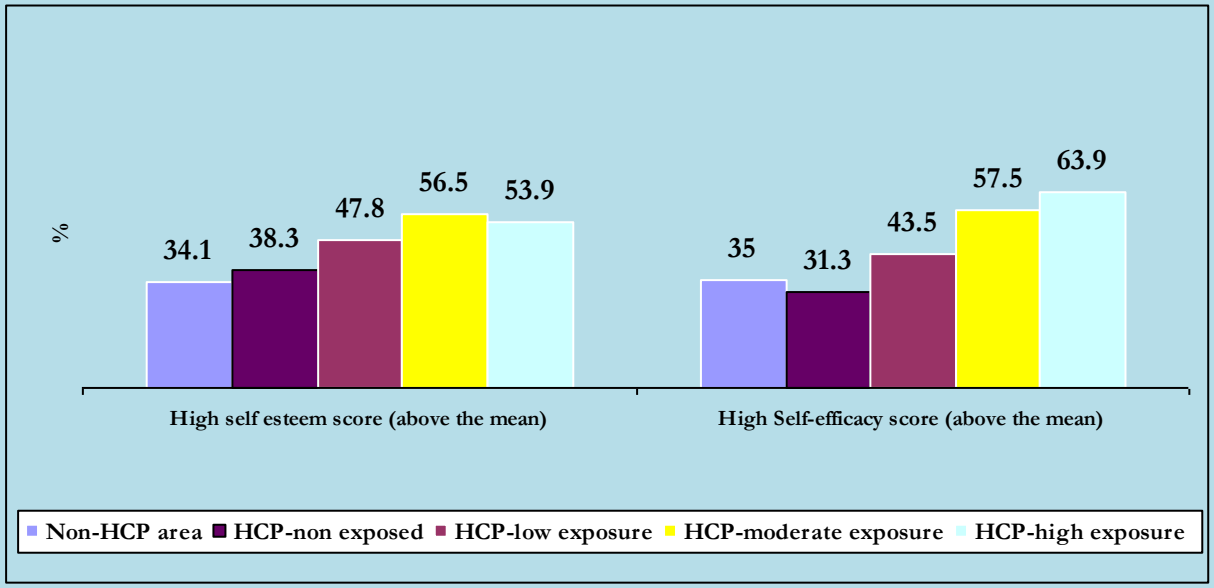
Table 17 takes the analyses one step further and presents the net effects of the HCP intervention on self-esteem and self-efficacy scores by adjusting for a number of selected characteristics in multivariate OLS models. Findings show that CSWs in the intervention areas exhibited significantly higher self-esteem and-efficacy scores than their non-intervention counterparts even after controlling for age, education, number of children living together, and duration is sex work, in current residence, place of residence and type of establishment. Furthermore, this analysis revealed that no factor other than exposure to the HCP intervention play a significant role in influencing CSWs' self-esteem. On the other hand, apart from the positive role of the HCP intervention, other factors emerged as significant predictors of self-efficacy in the multivariate analysis (Table 17). Irrespective of their exposure to the HCP intervention and other socio-demographics, it appears that CSWs with higher education level (Grade 10+) tended to have better self-efficacy than those with little or no education. Those who resided in current residence for longer period tended to exhibit higher self-efficacy. The same analysis also revealed that Adama CSWs scored significantly lower in the self-efficacy score than their Addis counterparts irrespective of their exposure to the HCP intervention.

Table 17. Multivariate OLS regression coefficients [β] and standard errors [se] in the estimation of self-esteem and self-efficacy scores in relation to being a sex worker according to selected variables, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Self-identity/-esteem and self-efficacy	
	Self-esteem score β (se) n=562	High self-efficacy score β (se) n=561
Study area		
Non-Intervention area (Ref)	0.0	0.0
HCP Intervention area	0.59(0.32)*	0.17(0.05)***
Age		
15-17 (ref)	0.0	0.0
18-20	-0.08(0.60)	-0.005(0.09)
21-24	0.04(0.58)	-0.015(0.09)
25+	-0.59(0.62)	0.02(0.09)
Education		
Cannot read/write (Ref)	0.0	0.0
Grade 1-6	0.39(0.38)	0.07(0.06)
Grade 7-9	0.08(0.42)	0.11(0.06)
Grade 10 +	0.80(0.56)	0.19(0.08)*
Children living together		
0 (ref)	0.0	0.0
1	0.08(0.41)	0.09(0.06)
2+	-0.33(0.69)	0.03(0.10)
Participate in other income generating activities		
Yes (Ref)	0.0	0.0
No	-0.03(0.44)	-0.01(0.07)
Duration in sex work (with an increase of one year)	0.14(0.04)	-0.006(0.005)
Duration in current residence (with an increase of one year)	0.008(0.02)	0.006(0.03)*
Place of residence		
Addis Ababa (Ref)	0.0	0.0
Adama	0.13(0.35)	-0.103(0.05)*
Type of establishment		
Big (Ref)	0.0	0.0
Small	0.17(0.39)	-0.02(0.058)

*OLS= Ordinary Least square; Ref=reference category; se= standard error *p<0.05, **p<0.01, ***p<0.001*

Figure 10. Percentage of respondents who scored above the mean on the self-esteem and self-efficacy indices according to their level of exposure to the HCP program intervention, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010



3.13. Social Capital

Three constructs were used to define social capital. These are social support, group cohesion and collective efficacy.

> **Social support**[27]: where an individual can go when in need, being able to count on someone in times of need.
> **Group cohesion**[28]: faith and participation in support groups, valuation or belief in working together as peers.
> **Collective-efficacy**: Collective efficacy is an extension of self-efficacy. It is more than just the sum of individual efficacy levels within the group[29]. Collective efficacy involves the individuals' perceptions regarding the group's performance capabilities. Collective efficacy beliefs are substantial implications for group effort and performance, especially for tasks requiring interaction among group members for success[30]. The key aspects comprising collective efficacy are shared beliefs among the team, coordinative capabilities between members, collective resources for task success, and situational specificity of demands[31].

The HCP program intervention strives to improve social capital of CSWs in the intervention area. Perhaps this is among the innovative facets of the HCP program intervention. In order to evaluate the effect of the program on social capital in its program area, we asked a number of questions related to social support, group cohesion and collective efficacy, as shown in Box 4.

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[27] Ibid, 4
[28] Ibid, 4
[29] Bandura, A. Social foundations of thought and action: A social cognitive theory, Englewood Cliffs, NJ: Prentice Hall, 1986.
[30] Bandura, A. Perceived self-efficacy in the exercise of personal agency, Journal of Applied Sport Psychology, v. 2, p. 128-163, 1990.
[31] Zaccaro, S. J.; Blarir, V.; Peterson, C.; Zazanis, M. Collective efficacy in J.Maddux (Ed.), Self-efficacy, adaptation and adjustment, New York: Plenum, 305-328, 1995.

Box 4. Survey questions used to Social Capital

Each of the answer for the following statements is on the scale ranging from
1=strongly disagreed, 2=disagree, 3=neutral, 4-=agree and 5=strongly agree

Social Support:

1. Sex workers in this establishment/neighborhood are willing to help each other.
2. Sex workers in this establishment/neighborhood will intervene if a client engages in violent behavior.
3. Sex workers in this establishment/neighborhood would be willingly share condoms with each other.
4. Sex workers in this establishment/neighborhood would help each other visit a clinic.
5. Sex workers in this establishment/neighborhood save money together..
6. Sex workers in this establishment/neighborhood speak up (support) for each other
7. Sex workers in this establishment/neighborhood spend their leisure time together.

Group Cohesion:

1. I trust the sex workers in this establishment/neighborhood.
2. I am close to the sex workers in this establishment/neighborhood.
3. I am satisfied with the relationships I have with the sex workers in this establishment/neighborhood.
4. I do not feel loved by the sex workers in this establishment/neighborhood.
5. I get along well with the sex workers in this establishment/neighborhood.

Collective efficacy:

1. By working together, commercial sex workers can have a positive influence on our community.
2. By working together, commercial sex workers can organize and implement an event such as a festival in our community.
3. By working together, commercial sex workers can help fight HIV/AIDS.
4. By working together, commercial sex workers can influence decisions that affect the community.
5. Commercial sex workers **cannot** organize themselves to address a social problem.

Social support:

The set of questions that were used to measure CSWs' perception regarding social support were combined to form an index of social support, which was then dichotomized as high or low based on the mean, as a cut-off point. Having high score on the index is an indication of high and positive perception regarding social support. Table 18 revealed the gross effect of the program intervention in improving social support in the intervention area. Data show 61.2% of the CSWs from the intervention area scored above the mean on the social support index compared to 47.2% in the non-intervention area; and this difference was statistically significant.

The multivariate analysis on Table 20 confirmed the finding form the Univariate in that the noted positive effect of the HCP program intervention on social support is not altered after adjusting for several socio-demographics and other characteristics of the CSWs. This is also somehow corroborated by the findings in Table 19 in which the actual participation in a number of traditional social support groups including religious groups, *Idir*s[32] and *Ikub*[33] appears significantly better in the intervention area than in the non-intervention.

The multivariate analysis in Table 20 also revealed the presence of other factors influencing CSWs' perception of social support. On the positive side, longer duration in sex work tended to carry significantly higher social support score. Irrespective of their exposure to the HCP intervention and other back ground characteristics, older CSWs, age 25+, were found to have significantly lower score in the social support index compared to their younger counterparts. CSWs in Adama tended to exhibit significantly lower score in the social support index compared to their Addis Ababa counterparts.

[32] Burial association
[33] Ikub is a traditional Rotating Savings and Credit Association

Table 18. Mean scores and the percentages that scored above the mean on the social support, group cohesion and collective efficacy indices, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=278 [a]	Non-intervention n=271 [a]	P-value
Social Support index:			
Mean [95% CI] score for self-identity/esteem	25.9(25.4-26.3)***	24.3(23.7-24.9)	p<0.000
% who scored above the mean	61.2**	47.2	p=0.001
Group cohesion index:			
Mean [95% CI] score for self-identity/esteem	17.2(16.9-17.5)**	16.3(15.8-16.7)	p=0.007
% who scored above the mean	64.6**	51.9	p=0.002
Collective efficacy index:			
Mean [95% CI] score for self-identity/esteem	20.0 (19.7-20.3)***	18.5(18.1-18.8)	p<0.000
% who scored above the mean	66.6**	52.7	p=0.001

[a] *missing cases excluded; Scale reliability coefficient for social capital =0.82; Scale reliability coefficient for group cohesion= 0.78; Scale reliability coefficient for collective efficacy= 0.83; **p<0.01, ***p<0.001*

Table 19. Percentage of respondents who reported being members of community-based organization or support groups, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Intervention area n=288	Non-intervention n=288	P-value
% respondents who reported membership to:			
Religious group	22.9***	10.1	p<0.000
Idir (Burial association)	11.8**	5.7	p=0.008
Ikub (a traditional Rotating Savings and Credit Association)	38.2**	27.1	p=0.004
Income generating Activity (IGA)	5.9**	1.4	p=0.004
NGOs supporting CSWs	17.4***	3.5	p<0.000

*p<0.05, ***p<0.001*

Group cohesion:

Findings on CSWs' perception of group cohesion also revealed the positive effect of the HCP program intervention. As shown in Table 18 above, the proportion that scored above the mean in the group cohesion index was significantly higher in the intervention area than in the non-intervention (64.6% vs. 52.7%). The multivariate analysis in Table 20 further confirmed the finding from the Univariate. Irrespective of their age, educational status, number of children living together, participation in other income generating activities, duration in sex work, in current residence, place of residence and type of establishment, CSWs in the intervention area were significantly more likely than those from the non-intervention to have higher group cohesion, suggesting the net effect of the

intervention in improving CSWs' perception towards group cohesion i.e. faith and participation in support groups and valuation in working together as peers.

Of note, irrespective of participation in the HCP program and their socio-demographics, CSWs in Adama were found to have significantly lower score in the group cohesion index.

Collective efficacy:

Akin to the social support and group cohesion, the HCP program intervention appeared to have significantly improved collective efficacy of CSWs. Two-third of the CSWs in the intervention area scored above the mean on the collective efficacy score, which is significantly higher than the 52.7% in the non-intervention (Table 18). This finding did not alter in the multivariate analysis that adjusted for a number of potential confounding variables (Table 20).

In the same multivariate analysis, higher collective efficacy sore was also documented for CSWs with better education (Grade 10+) compared to those with little or no education. Likewise, CSWs with longer duration in current residence tended to exhibit significantly higher collective efficacy. On the other hand, Adama CSWs scored lower in their collective efficacy index compared to their Addis counterparts.

Table 20. Multivariate OLS regression coefficients [β] and standard errors [se] in the estimation of social support, group cohesion, and collective efficacy scores, according to selected variables, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

	Social support index β [se] n=549	Group cohesion index β [se] n=550	Collective efficacy index β [se] n=563
Study area			
Non-Intervention area (Ref)	0.0	0.0	0.0
HCP Intervention area	1.75(0.39)***	0.92(0.32)**	1.41(0.27)***
Age			
15-17 (ref)	0.0	0.0	0.0
18-20	-0.107(0.71)	0.023(0.58)	0.04(0.51)
21-24	-0.89(0.73)	-0.626(0.59)	-0.220(0.52)
25+	-1.47(0.75)*	-0.834(0.61)	-0.278(0.54)
Education			
Cannot read/write (Ref)	0.0	0.0	0.0
Grade 1-6	-0.28(0.46)	0.16(0.38)	0.51(0.33)
Grade 7-9	-0.003(0.52)	0.57(0.42)	0.44(0.36)
Grade 10 +	-0.205(0.68)	0.61(0.56)	0.95(0.48)*
Children living together			
0 (ref)	0.0	0.0	0.0
1	0.044(0.50)	0.33(0.41)	0.367(0.35)
2+	-0.705(0.84)	0.43(0.68)	0.145(0.59)
Participate in other income generating activities			
Yes (Ref)	0.0	0.0	0.0
No	-0.26(0.53)	-0.27 (0.43)	0.117(0.38)
Duration in sex work (with an increase of one year)	0.107(0.04)*	-0.013(0.035)	0.05(0.03)
Duration in current residence (with an increase of one year)	0.011(0.023)	0.024(0.019)	0.035(0.016)*
Place of residence			
Addis Ababa (Ref)	0.0	0.0	0.0
Adama	-1.19(0.43)**	-1.38(0.35)***	-1.76(0.302)***
Type of establishment			
Big (Ref)	0.0	0.0	0.0
Small	0.54(0.47)	0.67(0.38)	0.443(0.33)

*Ref=reference category; se= standard error + 0.069; *p<0.05; **p<0.01; ***p<0.001*

The previous analyses showed the overall impact of the HCP intervention in improving social capital (as measured by social support, group cohesion and collective efficacy). It is of interest to programmers to understand whether there is any relationship between level of exposure to the program intervention and improvements in the social capital among CSWs in the intervention areas. Figure 11 presents the relationship between the level of exposure to the program intervention and the scoring of above the mean in the social support, group cohesion and collective efficacy indices. On the whole data suggest a dose-response relationship between level of exposure and the three measures of social capital. While high exposure significantly associated with having high score for the social support and collective efficacy indices; this was not the case for group cohesion. For group cohesion moderate exposure appears to be the threshold, and that moderate exposure may suffice in order to bring about the highest effect. Even low exposure to the intervention seems to carry significantly higher group cohesion and collective efficacy scores compared to the non-

intervention. In contrast, low exposure to the HCP intervention is not different than being in the non-intervention area in influencing social support.

CSWs that were certified at different point in time were compared by their perception of social capital, as shown in Figure 12. The graph revealed the lack of significant temporal trend in the proportion that scored above the mean in the social support, group cohesion and collative efficacy indices. This finding may well signal CSWs' maintenance of their perceived social capital even several months after graduating from the program.

Figure 11. Percentage of respondents who scored above the mean on the social support, group cohesion and collective efficacy indices according to their level of exposure to the HCP program intervention, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010

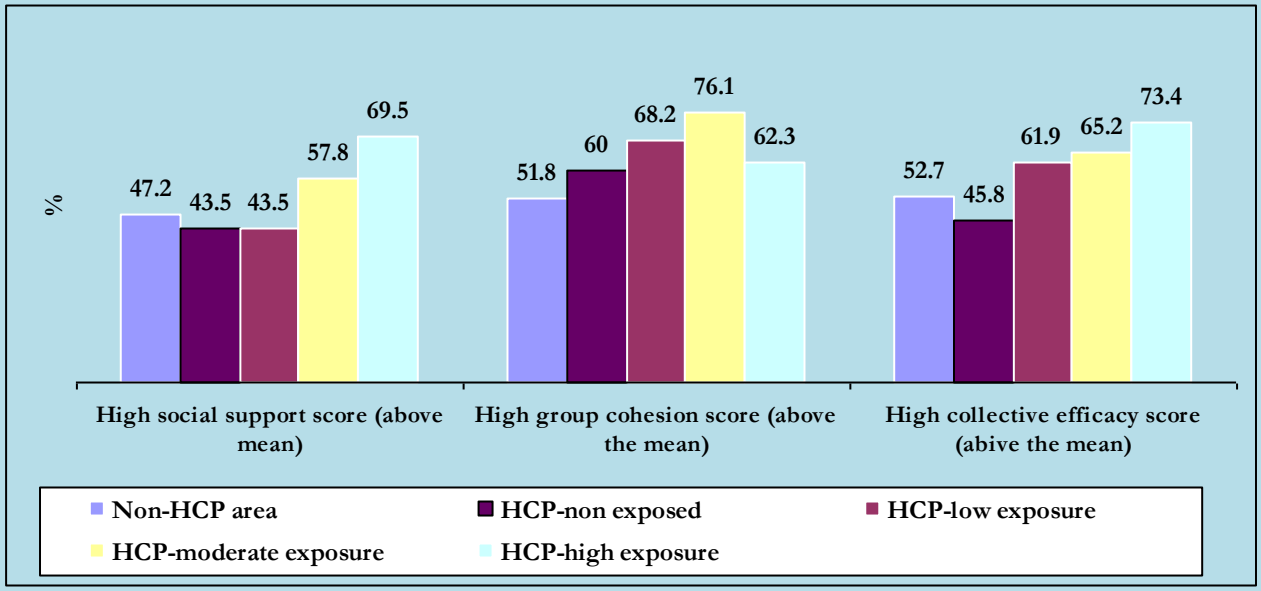
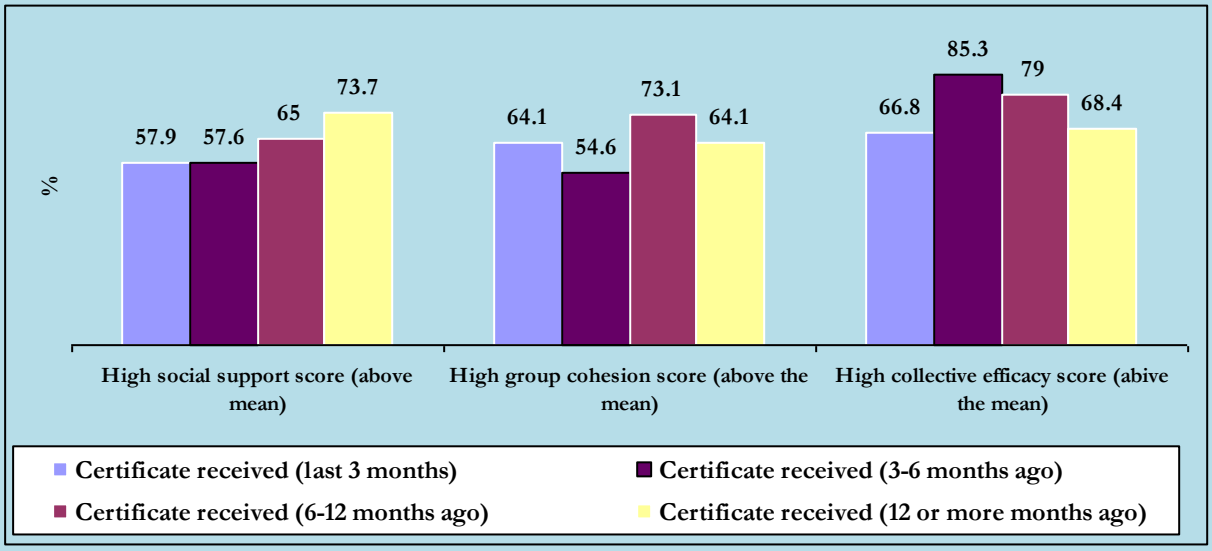


Figure 12. Among certified sex workers in the HCP intervention area, the percentage who scored above the mean on the social support, group cohesion and collective efficacy indices according to the time since certification, Commercial Sex Workers in Addis Ababa and Adama, Health Communication Partnership, April 2010



IV. Program effectiveness: Beneficiaries' perspective

Following the presentation of the main quantitative results in the aforementioned section, this section presents the views of program beneficiaries concerning the effect of the intervention program on condom use, care seeking for STDs, self-esteem and the creation of enabling environment. Findings emerged from the in-depth interviews with 48 CSWs, 24 establishment owners and 24 boyfriends (non-paying partners) of CSWs. The CSWs and establishment owners interviewed all participated in the HCP program intervention. The boyfriends were recruited through their CSW girlfriends.

4.1. Program influence on condom use, attitude and access

When asked what they liked about the peer education sessions, most CSWs singled out the topics concerning condom among the most useful and preferred sessions. Most emphasized the importance of the peer education activities on correct condom use, insertion condom and condom negotiation skills with all types of clients and boyfriends. In addition, the free distribution of condom by the program has been commended by most interviewees.

Positive attitude towards condom use appeared universal among the CSWs interviewed. CSWs tended to associate condom with personal safety, security and being protected form HIV/AIDS and STIs. Condom is also seen by most as a sign of being responsible and preparedness to avert potential danger. CSWs forwarded the following among their first impressions when they saw condom (*interviewers displayed condom*).

> *It reminds me that I am protected –CSW, Addis Ababa*

> *We [Sex workers] nicknamed condom 'my life'.....and when we want to buy condom we say to one another 'let me buy my life' –CSW, Addis Ababa*

> *It reminds me to always have condoms and being prepared –CSW, Adama*

> *It reminds me that I should check expiry date and whether air has slipped in to the condom –CSWs, Adama*

> *Because condom is important for my work, seeing condom always reminds me to correctly use it – CSW, Addis Ababa*

Improved correct and consistent condom use as a result of participating in the program intervention repeatedly suggested by the CSWs interviewed. The quantitative analyses also revealed the positive impact of the intervention on condom attitude and practice.

> *I will never have sex without condom even if a client offers me 1000 birr because I am now more concerned about my life –CSWs, Addis Ababa*

Perhaps, what has emerged as the most important impact of the program is the fact that CSWs have become more vigilant in their correct use of condom. CSWs recounted the use of own condoms and strictly avoiding using condoms brought by clients is among the major steps they have taken after attending the peer education sessions. Careful inspection of condoms for expiry dates, as well as making sure that the condoms are properly inserted, doing condom insertion by their own, making sure that it is intact during sexual intercourse, and removing condoms carefully and disposing them properly have also been surfaced among the positive changes in relation to condom use as a result of the program intervention.

Previously I used condoms that were brought by clients but now I only use my own condoms - CSW, Addis Ababa

I never tried to insert condom on the man's myself before but after the education [peer education] I start to do it in broad daylight and every two hours - CSW, Adama

When she showed me how to correctly use condom, I understand that her condom use with clients has changed – Boyfriend, Adama

When I look at how she inserts and ensures quality of condoms, I definitely see a huge change in condom use – Boyfriend, AA

While CSWs unanimously agreed on the universality of condom use with paying clients, they have in the opinion that condom use with boyfriends is often challenging. The quantitative data found that condom use with paying clients is nearly universal. Besides, condom use with boyfriends improved substantially in the intervention area although it is still far off universal. Boyfriends in general saw condom use with their girlfriends as a positive move towards healthy life. Most saw their girlfriends as becoming responsible and concerned about the health of both partners. Few boyfriends did not deny, however, their initial resistance when the request came from girlfriends. Continuous dialogue and discussion with their girlfriends helped most to accept condom use.

When she asked me to use condom, I agreed because she is concerned about our lives –Boyfriend, Addis Ababa

She became very careful in her sexual practice -Boyfriend AA

The quantitative data revealed about a quarter of the CSWs failed to be consistent in their condom use behavior with their boyfriends. Trusting for love, being tested negative, and boyfriends' opposition were suggested among the barriers to condom use with boyfriends, as reported by CSWs and the boyfriends interviewed. Convincing boyfriends to use condom is not always easy and there are CSWs who did not use condom with their boyfriends at all. Some boyfriends do not well come when girlfriends broke the topic of condom use. This is seen by boyfriends as a sign of "infidelity" of their CSW girlfriends and that their relationship is in trouble. This attitude of boyfriends reported to discourage CSWs from being assertive and pushing on the subject. For such boyfriends having sex without condom is taken as a sign of expression of love and cementing their relationships. One striking finding is that none of the boyfriends interviewed reported fear of possible HIV transmission from their sex work girlfriends.

We are not using condoms because he claims that he has tested negative - CSW, Addis Ababa

Boyfriends often think that they are not loved when girlfriends ask them to use condom - CSW, Addis Ababa

Although it is not difficult to use condom, we are not using it because we trust each other –Boyfriend, Addis Ababa

[If she asks me to use condom] I will be concerned because someone must have advised her and....she is loosing faith on me - Boyfriend, Addis Ababa

The fear that I may be loosing the love of my boyfriend makes it difficult for me to use condom with him - CSW, Addis Ababa

4.2. Program influence on STD awareness and treatment seeking

Improved STD knowledge, attitude and treatment seeking of CSWs have been implicated among the major contributions of the HCP program intervention. Most CSWs reported that they were taught about several aspects of STDs including the major signs and symptoms, ways avoiding STDs, the benefits of having regular checkups, the link between HIV and STDs via the peer education sessions. Some of the CSWs interviewed divulged their ignorance about STDs before attending the peer education sessions organized by the HCP.

> *Previously I did not know anything about the disease [STD]; I did not know whether it had a cure - CSW, Addis Ababa*

For most respondents infection with STD is considered among their major concerns. Commonly mentioned consequences include increased risk of HIV acquisition and complications arising during pregnancy and delivery. Some even mentioned the risk of infertility and other gynecological problems among the severe consequences of STDs. Infection with STD is also seen a great concern to CSWs because of its pain and foul smelling during intercourse, as a result which clients may turn away. This reported to affect sex work business.

> *Because it [STD] makes intercourse painful; [you] must get rest until [you] are cured and..... lose income - CSW, Addis Ababa*

Establishment owners seemed to be very much concerned about STD infection of the CSWs operating in their establishments, as this means loosing income not only for the individual CSW but also for their establishment.

> *Healthy CSWs attract more clients, which is important for the income of the establishment - Owner, Addis Ababa*

> *She [A sex worker] contributes when she can work....if she can't work due to the disease [STD] that affects the establishment –Owner, Adama*

> *Because AIDS [HIV] and STD are acquired through unsafe sex, I think that a person who has STD also has AIDS –Owner, Addis Ababa*

> *.....Since we posted the certificate [HCP certificate] on the wall of our establishment, more clients and customers have begun to flock to our establishment to escort trained and healthy sex workers –Owner, Addis Ababa*

Apart from improved knowledge, the program intervention is said to have impacted CSWs' treatment seeking behavior, and thereby resulted in an increase in the number of CSW seeking regular checkups for STDs. A number of CSWs interviewed reported that they have been to FGAE clinics for checkup and treatments. The free STD diagnosis and treatment service that is linked to the program intervention reported to be the major sources of optimism to have STD checkup regularly or at times of illnesses.

> *I have been following regular checkups [STD checkup] every three months - CSW, Adama*

> *The fact that I was cured [from STD] helped me to believe in regular [STD] checkups and treatment - CSW, Addis Ababa*

I go for STD check up every three months as a result of the [HCP] program - CSW, Addis Ababa

The program has also influenced STD care seeking behaviors of boyfriends of CSWs. Most of the boyfriends interviewed reported that they were advised by their CSW girlfriends to have STD checkup and treatment. The first common reaction of boyfriends when asked to be tested for STD was reported to be negative. Few boyfriends remained defiant despite continues dialogue with their girlfriends. While, most reported to eventually agreed to it and underwent STD testing in health facilities.

I was happy when she told me [to test for STD]; we will be tested –Boyfriend, Addis Ababa

[When she asked me to test for STD], I was puzzled and felt suspected of having the disease [STD] and asked her why she wanted me tested..... but gradually I agreed - Boyfriend, Addis Ababa

The first time she asked me [to have STD test] I did not like it and rejected the demand. Through repeated dialogue she convinced me and we went together and I was tested [for STD] - Boyfriend, Addis Ababa

Out of 48 CSWs participated in the IDI, 27 reported having had STD checkups in the FGAE clinic at least ones last year. Among the CSW who have visited FGAE, 3 had visited in the previous week of interview, 10 visited about a month ago, and 4 CSWs visited the last time in the past 2-3 months. For another 5 CSWs the last time they had been to FGAE was during the past 4-6 months. Over 7 months had elapsed since 6 of them had been to the FGAE clinic. The program recommends a quarterly checkup for STD but the information gathered from these CSWs suggest that only a little over a third (17 out of 48) have been following the recommend schedule. This can be corroborated by the findings from the quantitative part of this study. Out of 288 CSWs interviewed from the intervention area, only 55% reported visiting a health facility last year for STD checkup.

CSWs who visited the FGAE clinic appeared to have split into two by their opinion about the service. Those who held very positive attitude towards the service said they were satisfied by the STD and HIV counseling and testing services as well as the reception by the health professionals. These group of CSWs also said that they had not encountered any stigmatizing or discriminating attitudes from the health professionals. Waiting time was not seen a problem by these CSWs. On the other hand, other CSWs commented that waiting time to get the service was too long. It was also mentioned that the clinic is far away from their residence, discouraging service use. This group of CSWs also blamed health workers at the FGAE clinic for their poor reception. Of note, both groups did not have differing opinions concerning the counseling and testing services at the clinic.

The last time I went to the family guidance clinic [FGAE], I got the treatment the second day - CSW, Addis Ababa

The last time I went for check up, I waited the whole day to get the service. When it was my turn, they told me that the doctor is out and I had to come the next day. I was disappointed very much - CSW, Adama

There are a number of challenges that deter care seeking for STDs. Stigma and fear of positive STD results reported to limit CSWs' ability to seek care for STD. Some of the CSWs interviewed reported being uncomfortable in having their private parts examined by health workers. Giving blood sample and virginal smear for testing is not welcomed by some CSWs, deterring STD diagnosis and treatment seeking in the health facilities.

4.3. Change in self-esteem and efficacy

CSWs' self-esteem reported to have improved as a result of the intervention. For instance, it was repeatedly underlined that CSWs have begun to consider themselves as worthwhile and capable citizens. The quantitative findings in this report have also demonstrated significant improvement in CSWs self-esteem in the intervention area.

> *Before participating in the program, she used to see herself inferior and incapable person. After participation she begun to see herself as valuable and capable person as anyone else –Boyfriend, Addis Ababa*

> *Before participating in the program, I used to consider myself as spoiled and useless person. Now I feel strong and useful person –CSWs, Addis Ababa*

Improved efficacy in protecting oneself from dangers and achieving hopes and dreams are among the positive changes that have occurred following participation in the intervention.

> *Because of the HCP peer education I have learned how to avoid difficult men -CSW, Addis Ababa*

Attitudinal change towards becoming self-sufficient and a high intention of leaving sex work business has also surfaced in most interviews we had with CSWs.

> *Due to the education and the advice I received, I am planning to abandon the business in near future -CSW, Addis Ababa*

Establishment owners and boyfriends have noticed improved self-esteem of CSWs as a result of the program. Firsthand witness of CSWs' abandoning Khat and alcohol habits and beginning to plan for future were also reported by boyfriends and establishment owners.

> *She used to drink, chew Khat and smoke cigarette. Her relationship with other CSWs and clients was not good. Everything has changed for good after she participated in the program –Boyfriend, Adama*

4.4. Creating enabling environment

In order to create enabling environment and address the broader needs and concerns of CSWs, the program targeted different key actors. These are people and institutions surrounding the sex work life and the sex work establishments including establishment owners, boyfriends (non-paying partners), local administration, police and NGOs working on HIV/AIDS. This section in particular presents beneficiaries' accounts of how the program intervention influences the relationships among fellow CSWs, between CSW and owners/boyfriends/paying clients.

Relationship among fellow CSWs

In general, most respondents saw their relationship with fellow CSWs as positive and encouraging. It was repeatedly suggested that the life of CSWs demands cooperation and togetherness. For most CSWs, the influence of the HCP program in improving the day-to-day relationships among fellow CSWs and peers has been substantial. Some examples of positive changes include sharing information about the behavior of their clients, sharing condoms, helping each other during times of difficulty, and beginning to respect one another.

> *They [sex workers] began sharing information about client; they also share condoms and cooperate in many things –Establishment owner, Addis Ababa*

Before participating in the program [peer education] I did not respect the other sex workers. Because of the training [Peer education] we began to respect one another –CSW, Adama

They [Sex workers] look after my son; give me some money when I am broke –CSW, Addis Ababa

Recently three of us [Sex workers] went together for medical [STD] check up - CSW, Addis Ababa

While relationships among CSWs have improved recently, it is yet to be improved and not without problems. There are reports of CSWs who often avoid interaction with fellows and are said to be self-centered. Reports of a number of undesirable behaviors such as quarrels, gossip, distrust, deception, theft, and jealousy and unnecessary competition were reflected by a number of respondents. Such behaviors are damaging for the group and challenges group cohesion. Indeed, the quantitative data indicated that although group cohesion has improved significantly in the intervention area there is still a big gap, as there are about one-third having had low score on the group cohesion index.

When one sex worker had a good business for sometime while others not; this is seen as a work of witchcraft - CSW, Addis Ababa

Relationships between CSWs and owners

Owners are gatekeepers. They have the potential to influence the lives of CSWs positively or negatively. The program brings together CSWs and owners in one table through the peer education program. This was suggested by most among the most important aspect of the program.

CSWs and owners interviewed noted substantial improvement in their day-to-day relationships as a result of participation in the peer education program although there are reports of the still problematic relationships between the two parties. The peer education created opportunity for CSWs and owners to discuss about mutual problems and on how to work together. Most owners interviewed saw this as important steps that helped them understand deeper the lives of CSWs and motivated them to be helpful and considerate to CSWs.

The program is said to have motivated both CSWs and owners to be closer than ever. They began to discuss on a number of issues that concern the lives of CSWs. Topics often revolved around overall behavior change of CSWs, saving money, leaving sex work and starting other life, safety issues such as correct and consistent use of condoms. Some of the key areas owners are said to be collaborating with CSWs include helping out during dispute with abusive clients and those clients who want to have sex without condom. Owners also reported to advice CSWs have enough stocks of condom and use condoms in all sexual encounters including with boyfriends.

The owner supports me by facilitating good business and protecting from bad clients - CSW, Addis Ababa

We frequently discuss on the overall behavior change, saving money, safety issues such as correct and consistent use of condoms - Owner, Addis Ababa

Previously I did not mind whether a CSW use condom or not. Now I am the one who insists and advices them to use condom - Owner, Addis Ababa

I oversee the Iquib [a traditional Rotating Savings and Credit Association] and help them to save money -Owner Adama

Relationship between owners and CSWs in the intervention areas, despite the recent improvement, is reported to be still problematic. Although most CSW respondents agreed that owners' attitude and support improved following participation in the program, there are also reports of owners who are not supportive and playing negative roles.

Relationship with boyfriends (non-paying partners)

The quantitative data show about 60% of the CSWs in the intervention area had at least one boyfriend (non-paying partner) last year. Boyfriends play important role in CSWs lives and mostly seen as trusted friends by CSWs. Love and intimacy is an important aspect of their relationship. Protecting CSWs from intimidation and violence frequently reported as the most important role played by boyfriends.

> *My boyfriend protects me from violence, escorts me to the clinic and never forces me to give him money - CSW, Addis Ababa*

> *My boyfriend has a very good attitude towards me. He advises and supports me - CSW, Addis Ababa*

Few CSWs did not deny the fact that some boyfriends have detrimental effect. Indeed, for some CSWs relationships with boyfriends is not based on their full consents. In such circumstances boyfriends reported to benefit a lot out of such relationship. There are reports of abusive boyfriends who forcefully take money from CSWs and also compel CSWs to use addictive substances such as Khat and alcohol.

> *He did not assist me; in fact he was forcing me to give him money. Moreover he began to trouble my clients and eventually I decided to abandon me - CSW, Addis Ababa*

Most of the boyfriends we interviewed did not participate in the HCP program activities. They, however, appeared well aware of the intervention activities and peer education program through discussing with their CSW girlfriends. By boyfriends' account, the HCP program focuses on prevention of HIV/AIDS and STI, promoting condom use with boyfriends, regular customers and clients, avoiding sex with drunken clients, insertion and removal of condoms, checkup and follow up for STD. Some boyfriends also indicated the program educated CSWs on how to interact and treat clients, maintain good relations with lovers and clients, the importance of openness, and the dangers of addiction.

Since boyfriends are not direct participants of the program, it was difficult to get their firsthand opinion concerning the program. Nevertheless, CSWs attested that their relationship with boyfriends improved following participation in the peer education program. It was said that the peer education helped CSWs to become more assertive, negotiate better with boyfriends on condom use and substance use, among others. Good receptiveness form the side of boyfriends was also reiterated especially on condom use and checking for STDs.

> *We [sex worker and boyfriend] have begun discussing about our future life after participating in the [HCP] program - Sex worker, Addis Ababa*

Relationships with paying clients

Involving paying clients as key partners in intervention programs targeting CSWs is often critical. This is however often difficult to implement due to their hard-to-reach nature for direct intervention. The HCP program intervention did not involve directly with paying clients. As a result, only little can be said about the relationship between paying clients and CSWs. CSWs were asked whether they have made any change in their relationship with paying clients as a result of participating in the HCP program. Most reiterated that the program helped them to develop good negotiation and convincing skills when encountered with difficult clients who in particular demand sex without condom. Some CSWs said they have begun to avoid unnecessary quarreling with clients, avoid using bad words with clients and tried to become friendly with clients as a result of participating on the peer education program. Few reported that they advise clients to be strict in their condom behaviors.

> *Before the [HCP] program I used to insult, ridicule and torment clients. This has changed now- CSW, Addis Ababa*

> *I have never disappointed a client after participating in the [HCP] program - CSW, Addis Ababa*

> *Previously I used to quarrel gratuitously with clients. That has changed now thanks to the peer education - CSW, Addis Ababa*

V. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

Findings of this evaluation, taken together, demonstrated that the overall goals of the Smart Journey program intervention were largely met. Condom use with non-paying partners, with regular paying clients and treatment seeking for STD significantly improved. Parallel with these, the intervention brought about positive changes in a number of intermediate outcomes including attitude and efficacy in relation to condom, correct use of condom, knowledge of STDs and attitude towards seeking care for STDs. Psychosocial aspects of CSWs, especially their self-esteem have impacted positively by the intervention. By creating enabling environment, the program also significantly improved perceived social capital including social support, group cohesion and collective efficacy of CSWs.

It may be difficult to precisely tease out which distinct components of the intervention were involved in the recorded changes. Nevertheless, we posit here that the synergetic effects of the different facets of the intervention are responsible for the recorded results.

The noted increased consistent and correct condom use is likely to be attributed to the peer education sessions that helped CSWs to develop positive attitude and efficacy towards condom, good negotiation skills on condom use with clients and boyfriends, and the skills developed on condom insertion, quality inspection, among others. Part of the changes in condom behavior can also be attributed to the free condom access available through the program. The involvement of establishment owners and boyfriends as key partners in the program has also played its part. Through the peer education, CSWs were educated about STDs, their consequences and the link between HIV and STD, which might reinforce condom use. Likewise, the changes in STD awareness and treatment seeking are indeed the combined effects of the peer education and the referral linkage that was in place with the FGAE clinic, including the free access to STD drugs.

This evaluation also shed light on the presence of a dose-response relationship between exposure to the intervention and several outcome indicators. Indeed, for most outcome indicators moderate exposure to the intervention, as measured by attendance of 5-9 peer education sessions, tended to suffice to bring about the highest effect of the intervention. High exposure to the intervention (i.e. attendance 10-12 peer education sessions) naturally associated with high outcomes. On the other hand, this evaluation demonstrated the fact that low exposure (attendance of 1-4 peer education sessions) appeared inadequate to bring about favorable behavioral changes in these population of CSWs. Of note, about a quarter of the CSWs in the intervention area either did not attend any peer education session or attended at most 4 sessions. Furthermore, attendance of the peer education sessions varied significantly by study town, type of establishment and CSWs' age. Analyses showed that CSWs in Adama, those from big establishments and younger CSWs (under 20 years of age) were the groups with relatively lower attendance to the peer education sessions. These findings have important programmatic implication as part of intensifying the coverage and efficiency of the peer education activities.

This evaluation has also illuminated some gaps and challenges. Despite the improvements, about a quarter of the CSWs in the intervention area are not consistent in their condom use with boyfriends. Trusting for love, being tested negative and boyfriends' opposition emerged as the key barriers to condom use with boyfriends. Condom is seen as interfering into the love life of partners and that having sex without condom is considered as a sign of expression of love, trust and a way to cement relationships.

Whereas the intervention significantly improved treatment seeking for STD, regular STD check-up by CSWs has not yet reached the desired level. Several factors may deter regular STD check-ups. Stigma and fear of positive STD results, being uncomfortable in having private part examined by health workers, unwillingness to give blood sample and vaginal smear have emerged among the barriers to seeking care for STD. Although most CSWs appeared in agreement concerning the quality of the STD counseling and testing at the FGAE clinic, they held differing views on waiting time and the quality of reception by health workers at the clinic. Some also complained about long distance to clinic.

Irrespective of the Smart Journey program intervention, some group of CSWs was found to lack the necessary knowledge and behaviors to deal with the health and social aspects of their lives. Perhaps this would entail audience segmentation during program implementation. For instance, multivariate analyses found younger CSWs (age 15-17 years) as a particular group exhibiting low condom use with non-paying partners and having relatively lower awareness and knowledge about STDs. These young girls were also found to have low perception on social support. Newer CSWs to the establishments and those with little or no education were also found to lack the knowledge and awareness regarding STDs, lack self-efficacy to deal with problems, have relatively lower perception related to social capital irrespective of their participation in the program. We also found lower perception of self-efficacy and social capital among CSWs in Adama than in Addis Ababa even after accounting for exposure to the intervention and other socio-demographic characteristics in multivariate analyses. We cannot, however, provide plausible explanation for these differences between the two areas. It may well be that the relatively lower participation of Adama CSWs in the peer education sessions partly explained this difference. It is also possible that other unmeasured contextual factors may play their parts.

In conclusion, this evaluation provides sufficient evidence that when CSWs are exposed to an intervention encompassing a structured peer education supplemented with distribution of condoms and referral linkage to clinic it is likely that their knowledge, attitude and practice in relation to condom and STDs improve.

5.2. Recommendations

Founded on the strengthens and gaps identified, the following recommendations are forwarded to help improve existing intervention program in the study area as well as to serve as important input for better implementation of similar programs in the future.

Improve further CSWs' condom use with boyfriends (non-paying partners)

- Program should intensify efforts to reach out to boyfriends through CSWs and their peer network. This evaluation noted low participation of boyfriends in the program intervention area.
- Existing norms that deter condom use with boyfriends needs to be addressed. Dispelling boyfriends' and CSWs' perception of condom as an obstruction to love life is critical. The widespread belief of the link between condom use and mistrust between partners should also be addressed.
- Work with law enforcement bodies, police and women's group to deal with abusive boyfriends and those boyfriends who form relationships without the consent of CSWs. In this regard, CSWs need to be empowered to be assertive and report such boyfriends to concerned authorities.
- The low condom use with boyfriends by younger CSWs (age 17 years or younger) is an area of concern and deserves proper attention. Audience segmentation by age may help to address the special needs and concerns of these young CSWs.

Improve regular STD check-up of CSWs

- This evaluation found improved knowledge of STDs in the intervention area but it is still far off universal. Increasing CSWs' comprehensive knowledge of the different STD symptoms including those rarely recognized such as lower abdominal pain and swelling in groin as well as the consequences and severity of STDs constitute among the critical intervention activities.
- Promote vigorously regular STD check-up irrespective of symptoms.
- Address stigma in relation to seeking care for STD. Educate CSWs to develop positive attitude towards having their private part examined by health workers, to give virginal smear and blood sample for STD check-up.
- Fear of positive test result reported to deter STD check-up. CSWs need to be informed the fact that most STDs are curable, including the many benefits of early diagnosis and treatment.
- There appears a group of CSWs that are unhappy with the waiting time, distance and reception of health workers at the FGAE clinic. This finding is inconclusive, however. We recommend here an assessment of the quality of care of service at the FGAE clinic that encompasses the views of beneficiaries, health workers and other partners.
- For those CSWs who reside far away from the FGAE clinic, alternative program delivery approaches, including outreach services can be solicited.
- Low knowledge and awareness of STDs surfaced among younger CSWs, those with little or no education and new CSWs to the establishments. Program should find ways to improve the knowledge of such CSWs. Audience segmentation may be a viable strategy, as concerns, needs and experiences of CSWs vary by their socio-demographics.

Improve further the social capital of CSWs

- This study witnessed improved social capital of CSWs in the intervention area although the still difficult and challenging relationships with fellows and peers have been surfaced. Program thus needs to intensify further its intervention to help CSWs develop positive collegial attitude, help one another at time of difficulty, faith and participation in support groups, belief in working together as peers, including collective efficacy to deal with social issues that concern them.
- Program needs to address the low social capital among CSWs in Adama.

Encourage full participation and attendance of CSWs in the peer education sessions; address dropouts

- This study found about a quarter of the CSWs in the intervention area either did not attend any peer education session or attended at most 4 sessions. Only about 59% attended 10-12 sessions. Program thus needs to encourage full participation of CSWs in the peer education sessions.
- Contact tracing of dropouts from the peer education sessions needs to be put in place.
- The relatively lower attendance to the peer education session by Adama CSWs, those from the big establishments and younger CSWs needs to be addressed. Program may need to assess the mobility of CSWs, and find out the most plausible duration to deliver the peer education sessions.

Active tracing of new CSWs to enrol in the program

- Program needs to put in place an active tracing mechanism to trace and enroll new CSWs joining establishments. Peer educators and owners should be trained and actively involved in this endeavor.

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