

Effect Of Awareness Program On Knowledge On Prevention Of Cervical Cancer Among Female Commercial Sex Workers

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ABSTRACT

Context: High-risk sexual behaviour is a significant factor affecting the sexual and reproductive health of individuals. Commercial sex work, often referred to as one of the world's oldest professions, continues to be heavily stigmatized especially towards the individuals engaged in it. Numerous studies highlight that healthcare providers sometimes demonstrate reluctance or resistance in offering services to sex workers, which compromises their access to essential healthcare. Despite being at higher risk, the awareness, mindset, and behaviours of female sex workers (FSWs) regarding cervical cancer remain largely undocumented.

Objective of this study was to assess the effectiveness of an awareness program in improving knowledge related to cervical cancer prevention and to promote awareness of its risk factors among FSWs. Persistent infection with high-risk types of human papillomavirus (HPV), particularly types 16 and 18, is the primary cause of cervical cancer. Although cervical cancer is both preventable and treatable, effective prevention depends largely on public awareness, routine screening, and timely vaccination. Research indicates that female sex workers (FSWs) are frequently overlooked in national cervical cancer screening initiatives. Health education plays a fundamental role in health promotion, and by fostering behavioural change and enhancing communication strategies, the incidence and mortality rates associated with cervical cancer can be substantially reduced.

Methodology: A descriptive research design was employed. The study was conducted in the red-light area of Budhwar Peth, Pune. A total of 307 commercial sex workers were selected using purposive sampling. After obtaining informed consent, a structured knowledge questionnaire was administered to assess baseline knowledge (pre-test). An awareness program on cervical cancer prevention was then conducted. A post-test assessment was carried out seven days later using the interview method.

Results: The findings showed a significant improvement in knowledge scores among the participants following the intervention, indicating the effectiveness of the awareness program.

Conclusion: This study demonstrates that targeted awareness programs can significantly enhance knowledge regarding cervical cancer prevention among female commercial sex workers. Improving awareness and education in this vulnerable population is a critical step toward reducing the burden of cervical cancer.

Key words: Commercial sex workers, Prevention, Cervical cancer, Effect, Awareness,

INTRODUCTION

Cervical cancer remains a significant public health concern globally, particularly in low- and middle-income countries where screening and vaccination programs are less accessible. Among the populations at higher risk, commercial sex workers (CSWs) are notably vulnerable to cervical cancer. This heightened risk is attributed to several factors, including higher rates of human papillomavirus (HPV) infection, multiple sexual partners, and limited access to preventive healthcare services¹. Female sex workers in India face a complex array of challenges and issues, shaped by cultural, legal, and economic factors. Sex workers face significant social discrimination, which affects their access to health care, education, and social services. The stigma often leads to violence and exploitation. Health services are crucial for sex workers, particularly regarding sexual and reproductive health². In 2024, the Indian government continues to develop and implement cervical cancer screening policies specifically targeting vulnerable populations, including sex workers³. HIV-positive women are estimated to have a cervical cancer risk that is 5 to 10 times higher than that of HIV-negative women, largely due to the immunosuppressive effects of HIV which allow for persistent HPV infections to progress to cancer⁴. There is need to conduct public

awareness and education to reduce stigma and discrimination against sex workers so that there will be a better understanding of the challenges that sex workers face and the rights and well-being is known to the public and the workers themselves. Additionally, the socio-economic conditions and stigma faced by CSWs frequently result in barriers to regular screening and vaccination. This lack of access to preventive services exacerbates their risk. The prevalence of cervical cancer among CSWs is thus influenced by a complex interplay of behavioral, socio-economic, and healthcare-related factors. In this context, it is crucial to understand the extent of the problem and the specific challenges faced by CSWs to develop effective intervention strategies. Public health initiatives need to address these barriers and provide tailored support to mitigate the risk of cervical cancer in this vulnerable group⁵.

NEED OF THE STUDY

Several barriers hinder female sex workers (FSWs) in India from accessing cervical cancer screening services. A key challenge is the limited awareness regarding the importance of regular screening and the availability of preventive services, which is often associated with low levels of formal education within this population. Geographic inaccessibility, financial constraints, and the lack of healthcare services tailored to the specific needs of sex workers further restrict their access to care. Moreover, the criminalization of sex work in many regions fosters an environment of fear—where concerns about police harassment or legal repercussions may deter FSWs from seeking medical attention. The absence of integrated support systems, including counseling, patient navigation, and follow-up care, also contributes to low participation in cervical cancer screening programs. These barriers contribute to low rates of cervical cancer screening among female sex workers in India, highlighting the need for targeted interventions to improve access and awareness⁶. [Muche Argaw](#), [Aynamaw Embiale](#) et al conducted a study in 2022 in Shashemene Town, West Arsi, Oromia Region, Ethiopia on Knowledge, and practice of cervical cancer prevention and associated factors among commercial sex workers, mentioned that about half (50.1%) of respondents have knowledge regarding to cervical cancer, screening, and its prevention so they suggest that equipping them with audiovisual materials that will increase their knowledge that end up with good uptake⁷. Md. Omar Qayum, Mohammad Rashedul Hassan et al conducted a study in 2021 on Knowledge, Attitude and Practice of Commercial Sex Workers Regarding Cervical Cancer and Its Screening, Daulatdia Brothel, Rajbari District, Bangladesh. Study reveals that Sex workers in Daulatdia brothel were less knowledgeable about cervical cancer and less likely to have a VIA test and poor practices towards preventing cervical cancer. The sex workers underutilized the VIA test and HPV vaccine⁸.

Due to low levels of education, the clandestine nature of their work, and the lack of formal healthcare oversight, there is a critical need for the health sector to proactively bridge the gap between female sex workers and healthcare services. Addressing this disparity requires targeted interventions that focus on increasing awareness and education about high-risk sexual behaviours and their associated health consequences.

Although cervical cancer is preventable and treatable, prevention relies heavily on awareness, regular screening, and vaccination⁹. Previous studies have shown that FSWs are often excluded from national cervical cancer screening programs¹⁰. Health education is a cornerstone of health promotion¹¹, and through behavioural modification and effective communication, morbidity and mortality associated with cervical cancer can be significantly reduced¹².

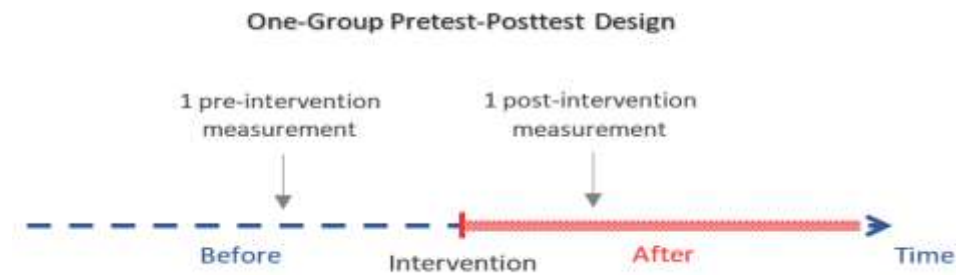
Knowledge is the most important factor for decreasing the prevalence of high-risk sexual behaviors¹¹.

AIM OF THE STUDY

The aim of the study is to assess the effect of awareness program and generate awareness on risk factors and prevention of cervical cancer among commercial sex workers.

RESEARCH METHODOLOGY

1. **Objective:** To assess the effect of awareness program and generate the awareness on prevention of cervical cancer among commercial sex workers.
2. **Research Type:** Quantitative (Interventional- awareness study)
3. **Research Design:** One group pre-test post-test research design was used.



4. **sample and size:** 307 Commercial sex workers aged between 30 and 65 years were enrolled as study participants. A Total 307 commercial sex workers residing in a red-light area or non-residential sex workers, who visit the red-light area during the day but return to their homes in the evening, were included in the study. Total population of the area was 3000. Participant recruitment was conducted using a purposive (non-probability) sampling method. Individuals were excluded if they had a current or previous diagnosis of cervical cancer, had undergone a hysterectomy, were pregnant, menstruating at the time of data collection, or were unwilling to participate in the study.

According to reference no. 5, hr HPV types 16/18 were detected in 27.5% female sex workers. With reference to this finding and with 95% confidence level & 5% absolute error minimum 307 commercial sex workers were required to study in present research.

Calculation:-

$$n = Z^2 pq / L^2$$

$$n = 1.96^2 \times 27.5 \times 72.3 / 5^2$$

$$n = 307$$

5. **Sampling technique:-** Purposive sampling technique

6. **Expected outcome:** Commercial sex workers will be able to aware on prevention on cervical cancer.

7. **Research Approach:** Quantitative research approach (Interventional) was used for the present study.

8. **Reliability:** Reliability of knowledge questionnaire as assessed by test-retest method. The reliability analysis revealed that the Karl Pearson correlation coefficient (r)=0.82. This indicated that the knowledge questionnaire is reliable.

9. **Variables:**

Independent Variables: Awareness program on prevention of cervical Cancer was the independent variable. Awareness program was given after conducting the pre-test assessment.

Dependent Variables: Depended variable attributes that show the effects of healthcare services and the outcomes of client care. In the present study depended variable was knowledge of the commercial sex workers.

Extraneous Variables: In the present study, frequent phone calls from customers may act as an extraneous variable, potentially leading to the avoidance attending awareness program among commercial sex workers.

10. **Research Setting:** The present study was conducted in the Red light area, Budhwar peth, Pune. This study was conducted under the supervision of one local NGO named Rev. Haribhau Waghmode Patil Pratishthan (RHWPP), working so hard for the Commercial sex workers and their children. This NGO had provided one separate clean room for conducting the awareness program on prevention of cervical cancer including pre-test and pot-test assessment.

11. **Population:** In the present study population includes all the commercial sex workers who were staying or visiting daily at Red light area, Budhwar peth, Pune.

12. **Criteria for selection of samples:**

Inclusion Criteria: Female sex workers who were -
willing to participate.

aged between 30 to 65 yrs.

who can understand Hindi.

Exclusion Criteria: - Female sex workers who were-

Not willing to participate.

Women with associated psychological condition.

Delimitations

The study was limited to commercial sex workers only, excluding women from the general population.

Study was restricted to age group between 30-65 years of age. Study was conducted only in selected redlight area, Pune.

13. **Description of tool:** Tools are described in two sections-

Section I

Socio-demographic variables and clinical variables: It includes four parts.

Part I The socio-demographic details of commercial sex workers included age, educational status, monthly income, marital status, personal history (habits), age of first sex, customers per day

Part II Clinical-profile includes number of Children, Mode of delivery, Place of delivery, Methods of birth control, Abnormal discharge from vagina, History of HIV infection, Cervical cancer vaccine, Cervical cancer screening, Heavy bleeding during menstruation, Severe weakness, Pain during Sex

Section II

Awareness questionnaire on prevention of cervical cancer.

The awareness Assessment on knowledge on prevention of cervical cancer of female commercial sex workers was done with structured questionnaire method. Scores less than 8 indicates poor knowledge, scores 9-18 indicate moderate knowledge and scores more than 18 indicate the good knowledge score.

It contains six domains.

- I. General information of cervical cancer.
- II. Symptoms of cervical cancer.
- III. Risk factors of cervical cancer.
- IV. Prevention of cervical cancer.
- V. Screening for cervical cancer.
- VI. Treatment of cervical cancer.

Total 25 questionnaire based on six domains on awareness regarding prevention of cervical cancer. General information of cervical cancer domain contains three questions, symptoms of cervical cancer domain contain five questions, risk factors of cervical cancer domain contain five questions, prevention of cervical cancer domain contains six questions, Screening for cervical cancer domain four questions, treatment of cervical cancer domain contains two questions. Each question in every domain carries one mark.

Awareness score was scoring is divided into three category such as poor, moderate and good.

Awareness	Score
Poor	<8
Moderate	9-18
Good	>18

In the present study, structured dichotomous questionnaire was used to assess the awareness regarding prevention of cervical cancer of female commercial sex workers before and after the administration of awareness program.

Pre-test was conducted by the research investigator by conducting interview technique before implementing the awareness program. Post test was conducted after seven days of conducting awareness program.

RESULTS**Part-I: Description of Female Commercial Sex Workers According to Socio-Demographic Variables.**

In the present study, out of 307 commercial sex workers, the majority 231 (75%) female sex workers were between 30 and 40 years of age, while the smallest group, comprising only 5 (2%) participants were in the 61 to 65 age range.

The majority of female sex workers, 204 (66%), had no formal education, while only one (0.33%) sex worker had attained a postgraduate degree.

Majority of 159 (52%) sex workers were having monthly income between Rs. 41,000 or above.

The majority of female sex workers, 203 (66%) were married.

In terms of personal history, the majority of female sex workers, 167 (54%), reported using substances such as smoking, tobacco chewing, or alcohol, while only one participant reported a history of drug use.

The majority of female sex workers, 288 (94%), reported having their first sexual exposure before the age of 21 years.

In terms of customers per day, a

larger proportion of female sex workers, 142 (46%), reported engaging with four or more customers on a daily basis.

Part-II: Major findings related to clinical profile of Commercial Female Sex Workers

The majority of female sex workers, 122 (40%), had two children.

In terms of the mode of delivery, most of the female sex workers, 209 (68%) underwent normal vaginal delivery.

In terms of the place of delivery, majority of female sex workers, 183 (60%) had their delivery in a hospital setting

In terms of the birth control methods, majority of female sex workers, 302 (98%) sex workers were using at least one or two birth control methods including oral pills, condoms, copper-T and tubectomy.

Majority of female sex workers, 151 (49%) reported no issues with abnormal vaginal discharge.

In relation to HIV status, the majority of female sex workers 253 (82%) tested negative for HIV.

The majority of female sex workers—116 (38%)—reported not experiencing pain during sexual intercourse.

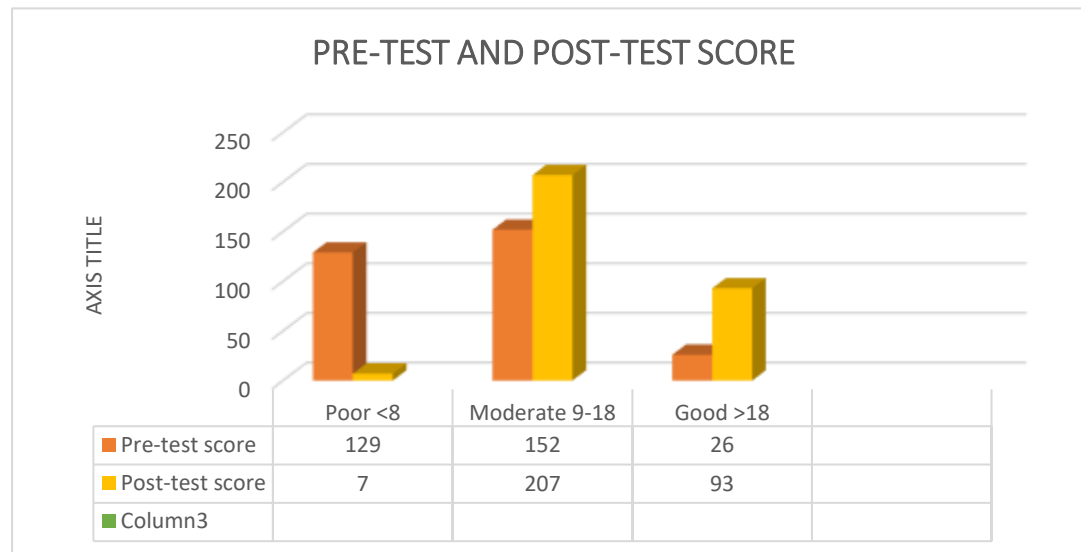
The majority of female sex workers, 294 (96%) had not received the HPV vaccine, and 263 (86%) had never been tested for cervical cancer."

Majority of female sex workers, 142 (46%) reported not experiencing heavy menstrual bleeding.

In terms of severe weakness, 228 (74.3%) female sex workers reported experiencing this symptoms.

Awareness Assessment on Knowledge on Prevention of Cervical Cancer**Table 1: Pre-test and post-test score**

Knowledge	Score	Pre-test score		Post test score	
		No.	%	No.	%
Poor	<8	129	42%	07	2%
Moderate	9-18	152	50%	207	67%
Good	>18	26	8%	93	31%

**fig 1: pre-test and post-test score**

The above table and diagram represent the pre-test and post-test scores of female commercial sex workers about knowledge on prevention of cervical cancer. Pre-test score shows that among 307 sex workers, 129 sex workers had poor knowledge, 152 sex workers had moderate knowledge and 26 sex workers had good knowledge about the prevention of cervical cancer, whereas post-test score shows that among 307 sex workers, 07 sex workers had poor knowledge, 207 sex workers had moderate knowledge and 93 sex workers had good knowledge about the prevention of cervical cancer.

Above figure shows the improvement of knowledge score of sex workers after the intervention of awareness program.

Table 2: Post -intervention Improvement table

KNOWLEDGE	POST- TEST SCORES				
PRE-TEST SCORES	Category	Poor	Moderate	Good	Total
	Poor	07 (5%)	104 (81%)	18 (14%)	129 (100%)
	Moderate	-	96 (63%)	56 (37%)	152 (100%)
	Good	-	7 (27%)	19 (73%)	26 (100%)
	Total	07	207	93	307

The above table indicates that in the pre-assessment, out of 307 commercial sex workers, 129 sex workers had poor knowledge on prevention of cervical cancer. However, after the intervention (awareness program), 122 sex workers had showed the improvement in their knowledge scores, where 104 had improved to moderate category of knowledge and 18 had scored good knowledge. 152 sex workers had moderate pre-test knowledge scores on prevention of cervical cancer but following the intervention, 96 sex workers remained in the moderate category but 56 sex workers had showed the improvement and came under the good category. 26 commercial sex workers had good knowledge category, however after the intervention 19 sex workers remained in the good knowledge category and 7 sex workers had moderate impact in the post-test assessment.

DISCUSSION

In the present study, pre-test knowledge scores of commercial sex workers are assessed, where 129 commercial sex workers had poor knowledge scores, 152 had moderate knowledge scores, and 26 had good knowledge scores. After the intervention which is awareness program on knowledge on prevention of cervical cancer posttest assessment was conducted. Post test scores of commercial sex workers are, 07 had poor knowledge scores, 207 had moderate knowledge scores and 93 had good knowledge scores. Study shows that after the intervention commercial sex workers have improved their knowledge scores on prevention of cervical cancer.

In the present study a significant difference was found in knowledge scores between pre and post intervention knowledge scores. The pure effect of the intervention was estimated at 62 %.

A study conducted by Mona Larki (2015), revealed that a positive significant increase was found in the mean scores of knowledge and Attitude of female sex workers immediately and four weeks after the program ($P < 0.001$),¹¹ which is in agreement with the result of the present study.

Cecilia Benoit (2017), where Sex workers as peer health advocates, showed promising results. Peer-to-peer interventions, wherein sex workers act as educators of their colleagues, managers, clients and romantic partners, foster community mobilization and critical consciousness among sex workers and equip them to exercise agency in their work and personal lives. The peer education program proved successful in enhancing sex workers' community empowerment in one urban setting by increasing their knowledge about health issues, sharing information about and building confidence in accessing services, and expanding capacity to disseminate this knowledge to others¹³.

CONCLUSION

Since the implemented educational program could improve the knowledge of female commercial sex workers in the current study, it is necessary to design and implement educational programs in various locations where sex workers can be found. Educating one sex worker on various health issues may also help to spread the knowledge to her peer group and piloting of such a peer-based knowledge exchange initiative that targets sex workers' personal and workplace networks will empower them to shape personal practices around health promotion and prevention strategies, and will improve their access to health and social services within the local community¹³.

Conflict of Interest: The authors certify that they have no involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this paper.

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