

RESEARCH COMMUNICATION

Cancer Screening for Women Living in Urban Slums - Acceptance and Satisfaction

Yogesh Kumar¹, Gauravi Mishra^{2*}, Subhadra Gupta², Surendra Shastri¹

Abstract

Background and Objectives: Preventable cancers like cancers of cervix, breast and oral cavity claim more than 142,500 lives of Indian women annually. Mobile cancer screening may help in early detection and successful treatment in vulnerable populations. **Methods:** This is a community based mobile cancer screening program in co-ordination with various non-governmental organizations. Participants included 182 women from low socio-economic background residing in Mumbai. Around twenty five consenting women were screened in each of the eight camps conducted. Health education programme (HEP) was given before screening. Tests included clinical breast examination (CBE) for breast, visual inspection with 5% acetic acid (VIA), visual inspection with lugols iodine (VILI) followed by colposcopic examination for cervix and oral visual examination (OVE) for oral cavity. Women requiring further diagnostic tests were referred to the nodal hospital. A satisfaction survey was carried out at the end of the examination. **Results:** Out of 182 women screened, 179 received health education. More than 90% of the participants were satisfied with the various aspects of screening. Majority (90%) of them found the mobile screening facility more convenient and accessible than static site screening. The variables age and income were found to be significantly associated with the overall satisfaction of the participants. The satisfaction level regarding information given during HEP was moderate (74%) compared to other factors. **Interpretation and Conclusion:** The overall acceptance and satisfaction levels were encouraging with the mobile cancer screening programme. Such a facility can act as an important tool in cancer prevention and control in low socio-economic women.

Keywords: Cancer screening - satisfaction - low socio-economic women - Mumbai, India

Asian Pacific J Cancer Prev, 12, 1681-1685

Introduction

According to World Cancer Report, there is a high incidence rate of cancer throughout the world and may reach about 20 million by 2030 (World Cancer Report, 2008). In India, about 950,000 new cancer cases are detected every year with 633,500 deaths. Females account for more than 500,000 cases, of which around 300,000 succumb to the disease. Most common cancers among women are cervical, breast and oral cancers which are responsible for more than 142,500 deaths (Ferlay et al., 2008).

The goal of a screening program is to detect people who are at a higher risk of developing cancer. In order to have a successful cancer screening program and reduce mortality, about 70% of the target population needs to be screened at regular intervals (Forrest, 1986). Various factors play a role in compliance for screening which may be either related to participants or physicians examining them (Ferreira et al., 2005). Several researchers have concluded that the degree of participants' satisfaction with the screening program may directly influence their future participation (Baker et al., 1998; Drossaert et al.,

2002; Peipins et al., 2006; Smokin et al., 2004; Cozier et al., 2001; Liuet al., 2008).

Unfortunately there is no population based cancer screening program in India. Awareness about cancer among general public is very poor and there are only few centers with cancer screening facilities throughout the country which makes early detection and treatment of common cancers very difficult. In such a scenario, a mobile cancer screening facility, which reaches out to the population, plays a vital role in early detection and treatment of precancerous and cancerous lesions. Such a facility has been considered as the effective way to detect early cancers in the community where the existing screening activities fail to reach. Advantages of mobile screening includes reaching remote populations with limited access to the medical facilities, direct contact with target population, and improvement in the compliance rates (Swaddiwudhipong et al., 1999; Mauad et al., 2009). However, there are some factors which make such screening less favorable among participants like limited space, physical surroundings, lack of privacy, poor facilities, long waiting hours and difficulty in discussing some important issues with the doctors (Nan-He Yoon et

Department of Preventive Oncology, ²TMCUOP Office, Tata Memorial Hospital, Mumbai, Maharashtra, India *For correspondence: gauravi2005@yahoo.co.in, mishraga@tmc.gov.in

al.,2009). Considering these factors, a cancer screening program using a mobile cancer screening facility was organized in various parts of Mumbai and the satisfaction levels among the participants towards this modality of screening was evaluated.

Materials and Methods

This was a community based cancer screening program conducted for women of low socio-economic strata using a mobile van. Participants included 182 healthy, ambulant and asymptomatic women in the age group of 30-65 years with low socio-economic background and residing in jurisdiction of Greater Mumbai on a permanent basis. The participant women were recruited in co-ordination with various Non Governmental Organizations (NGO) in different parts of Mumbai.

The staff of Preventive Oncology Department, Tata Memorial Hospital, along with different local NGOs finalized the arrangements like mobile van parking, venue for deliverance of health-talk, date and time for screening, before inviting the participant women for the screening program. It was decided to screen 25 women in each camp, taking into consideration the time required for delivering health education regarding cancer prevention, taking history and examining each woman for cervical, breast and oral cancer. Eight such camps were conducted from December 2009 to April 2010.

The mobile cancer screening van had all the facilities to screen breast cancer, cervical and oral precancerous lesions. Prior to the actual screening, details of knowledge and practices regarding cancer and cancer screening among the study participants was collected using a pre-structured questionnaire by Medical Social Workers (MSW). Later, health education session explaining the risk factors, signs, symptoms, and early detection measures for breast, cervical and oral cancers was conducted near the screening site. Women willing to participate in the screening program signed a written informed consent form.

To begin with, women who used tobacco in any form were screened for oral pre-cancers and cancers irrespective of age, duration and type of tobacco consumed by Oral Visual Examination (OVE) performed by the trained Primary Health Worker (PHW). All women were screened for breast cancer by using Clinical breast examination (CBE), which was conducted in sitting and lying down position by PHW as per the modified version of the Canadian National Breast Screening Study protocol (Basset, 1985). All women, screened positive by the PHW for breast or oral cancers, were later examined by the Medical Officer. Those requiring further tests were referred to the TMH for further diagnostic investigations and management. All eligible women were then screened for cervical precancer and cancer by the PHW using visual examination tests like Visual Inspection with 5% Acetic Acid (VIA) and Visual Inspection with Lugols Iodine (VILI) as per the IARC manual and chart (Sankaranarayanan et al., 2003). The Medical Officer performed Pap test, Colposcopy, guided biopsy and /or endocervical curettage for all women screened positive by

the PHW. Women requiring further diagnostic tests were recalled at TMH after reviewing the reports. For quality assurance, 10% of participant women who were screened negative were also examined by the Medical Officer. After the screening, each woman was interviewed to complete an acceptance and satisfaction survey to record her experiences and opinion regarding this mobile cancer screening program and her views on future participation. The patients referred to TMH were managed as per the evidence based management protocols of the TMH. In this paper, we present the details of satisfaction among the participant women in the study towards mobile cancer screening so that the existing gaps in the service delivery can be filled at all levels, from collection of information, delivery of health education program to procedure of screening etc. and necessary changes can be made in the vehicle to improve the compliance.

Statistical Analysis

Intercooled Stata 8.2 was used to carry out the checks for consistency in the data and analyze it. A statistical difference in the criteria influencing the overall satisfaction levels was determined using Chi square test.

Results

In our study, 182 out of 200 women consented to

Table 1. Satisfaction Levels among Women Attending the Mobile Cancer Screening Programme

Activity	Satisfied:	Yes	%	No	%
Health Education Programme					
Quality of Health Talk		168	93.85%	11	6.15%
Interaction to clear doubts		166	92.74%	13	7.26%
Information about the tests*		179	98.35%	3	1.65%
Opinion about information		133	74.30%	46	25.7%
Total Respondents		179			
Positive Perception about Quality of Examination					
With Medical Officer		182	100%	0	0
With Medical Social Worker		182	100%	0	0
With Primary Health Worker		181	99.45%	1	0.55%
Examination procedure :					
i) Oral#		58	98.31%	1	1.69%
ii) Breast		179	98.35%	3	1.65%
iii) Cervix		177	97.25%	5	2.75%
Technical competence		182	100%		
Total Respondents		182			
Perception About the Screening Space in the Mobile Van					
Privacy level		182	100%	0	0
Changing room		178	97.80%	4	2.20%
Examination room :					
i) Oral#		58	98.31%	1	1.69%
ii) Breast		180	98.90%	2	1.10%
iii) Cervix		179	98.35%	3	1.65%
Total Respondents		182			
Comparison with Static Site					
Convenient		166	91.21%	16	8.79%
More accessible		163	89.56%	19	10.44%
Prefer for Future Screening		173	95.05%	9	4.95%
Total Respondents		182			

*Only 179 women attended the HEP where as all the 182 women were informed about the screening procedures to be performed; # only 59 women were screened as they were tobacco users

Table 2. Co-relation with Socio Demographic Characteristics and Satisfaction levels

Features	Overall Satisfaction		p Value
	High	Moderate	
Age (in years)			0.010
a) 30-39	53 (75.71%)	17 (24.3%)	
b) 40-49	67 (91.78%)	6 (8.22%)	
c) 50-59	22 (91.67%)	2 (8.33%)	
d) 60-65	15 (100%)	0	
Total Respondents	157	25	
Education			0.220
a) Primary (1-4)	20 (90.91%)	2 (9.09%)	
b) Second(5-10)	68 (86.08%)	11 (13.92%)	
c) Higher (11-12)	10 (100%)	0	
d) Sr. college	11 (100%)	0	
e) Illiterate	48 (80.00%)	12 (20.00%)	
Total Respondents	157	25	
Religion			0.515
a) Hindu	103 (87.29%)	15 (12.71%)	
b) Muslim	8 (72.73%)	3 (27.27%)	
c) Christian	43 (86.00%)	7 (14.00%)	
d) Buddhist etc	3 (100%)	0	
Total Respondents	157	25	
Occupation			0.183
a) Housewife	92 (90.20%)	10 (9.80%)	
b) Manual Labour	35(79.55%)	9 (20.45%)	
c) Service	13(86.67%)	2 (13.33%)	
d) Self employed	11(91.67%)	1 (8.33%)	
e) Others	6 (66.67%)	3 (33.33%)	
Total Respondents	157	25	
Monthly Family Income (in Rs.)*			0.023
a) ≤ 2000	69 (94.52%)	4 (5.48%)	
b) 2001 – 5000	71 (79.78%)	18 (20.22%)	
c) 5001 – 10000	15 (88.24%)	2 (11.76%)	
Total Respondents	155	24	

*income data were unavailable for 3 participants

participate in the screening activity out of which 179 women received health education. Three women could not attend the health education program due to their time constraints. Only 58 women were screened for oral cancer as they were tobacco users.

Participant satisfaction regarding the health education program which was conducted at screening site was encouraging (see Table 1). 168 (93.85%) out of the 179 women who received health talk were satisfied with the quality of the health talk and 133 (74.30%) women felt that the information provided was adequate. Majority, that is 166 (92.74%) women expressed that they had good interaction with the staff members to clear their doubts during the health education session.

All the 182 study participants had good interaction with the Doctors, MSWs and PHWs during the screening procedures and felt that the staff had technical competence for carrying out the screening tests. Almost all, i.e., 179 (98.35%) women were satisfied with the information provided to them regarding the tests to be conducted. Regarding the procedure of the tests, satisfaction levels were high with 58 (98.31%) out of 59, 179 (98.35%) and 177 (97.25%) women out of 182, feeling comfortable with oral, breast and cervical screening tests, respectively.

Although all (100%) the study participants were satisfied with the privacy levels inside the vehicle, four

Table 3. Comparisons of Positive Responses among the Highly and Moderately Satisfied Groups

Satisfied about	Highly Satisfied	Moderately Satisfied	p Value
Health Education			
Questions of health talk* Interaction*	143(92.86%)	25(100%)	0.168
Information about tests	144(93.51%)	22(88.00%)	0.325
Opinion on information*	155(98.73%)	24(96.00%)	0.320
Total Respondents	157	25	
Quality of Examination			
With Medical Officer	157(100%)	25(100%)	
With Social Worker	157(100%)	25(100%)	
With PHW	156(99.36%)	25(100%)	0.689
Technical competence	157(100%)	25(100%)	
Examination Process			
i) Oral#	54(100%)	4(80.00%)	0.001
ii) Breast	156(99.36%)	23(92.00%)	0.007
iii) Cervix	154(98.09%)	23(92.00%)	0.084
Total Respondents	157	25	
Screening			
Privacy	157(100%)	25(100%)	
Changing room	155(98.73%)	23(92.00%)	0.033
Examination room			
i) Oral#	54(100%)	4(80.00%)	0.001
ii) Breast	157(100%)	23(92.00%)	0.000
iii) Cervix	156(99.36%)	23(92.00%)	0.007
Total Respondents	157	25	
Comparison of Mobile Van With The Static Site			
Convenient	145(92.36%)	21(84.00%)	0.171
Accessible	143(91.08%)	20(80.00%)	0.092
Would Prefer for Future Screening	149(94.90%)	24(96.00%)	0.541
Total Respondents	157	25	

*Total respondents were 154 in the highly satisfied group; PHW, Primary Health Worker; #total respondents for oral cancer screening were 54 for the highly satisfied and 4 for the moderately satisfied group

(2.2%) women were not satisfied with the changing rooms. The examination rooms were considered as adequate by 58 (98.31%) women for oral, 180 (98.90%) for breast and 179 (98.35%) for cervical screening. 166 (91.21%) of the study participants had opinion that mobile screening facility was more convenient and 163 (89.56%) thought it had greater accessibility than a static site and 173 (95.05%) women were willing to get screened in such facility in future. Overall, 157 (86.3%) women were highly satisfied with mobile screening as compared to 25 (13.74%) women who were moderately satisfied. There were no participants in the poorly satisfied category.

On studying the relationship between overall satisfaction levels among study participants and their socio-demographic characteristics (Table 2), significant association was observed with age and socio-economic status. While all (100%) women in the age group of 60-69 years were highly satisfied with the screening program, the satisfaction level among 50-59 year and 40-49 year age groups was almost similar at around 92%, whereas, in the 30-39 year age category only 75.71% women were highly satisfied, indicating that satisfaction levels increased with increasing age of the participants. Similarly, women whose family income was rupees 2000 or less per month were

highly satisfied as compared to the other two groups.

Comparing the overall satisfaction levels and individual aspects of screening (Table 3) majority (>90%) of the 157 highly satisfied participants were satisfied with all components of Health Education Program except the opinion regarding information provided (75.97%). Similar findings were noted among the 25 moderately satisfied women with 64.00% women satisfied with the information provided through HEP.

Regarding perception of quality of screening tests, 100% of both highly satisfied and moderately satisfied women had good views about interaction with Medical officer, MSW, PHW and their technical competence. For the examination process, women in highly satisfied group were not as satisfied with cervical examination (98.09%) as compared to oral (100%) and breast (99.36%) examination. Among those moderately satisfied, opinion regarding cervical and breast examination was similar (92.00%) but the satisfaction regarding oral cancer screening was comparatively low at 80.0%.

Satisfaction levels regarding screening section inside the mobile van varied in both the groups. In highly satisfied group, almost all the women were satisfied with the facilities except two (1.27%), who were not satisfied with changing room facility inside the van. Among moderately satisfied group, while all the women were satisfied with the privacy, 92% women were satisfied with changing room, breast and cervical examination section where as only 80% were satisfied with oral examination section. Compared to static site screening more than 90% of the highly satisfied group felt mobile screening was more convenient and accessible and 95% participants said that they would prefer mobile facility for future screening. 84% of participants in the moderately satisfied group thought mobile screening was convenient, 80% thought that it was easily accessible and 96% felt they would prefer mobile screening over static site screening in future.

Discussion

This mobile cancer screening is perhaps the first of its kind in India. Majority of the participants were satisfied with all the aspects of screening like health education program, interaction with the staff, examination procedure, technical competence, facilities in the screening vehicle like changing rooms, privacy maintenance and examination rooms and found such an activity more convenient and accessible than static site screening. They would prefer a mobile site over a static site for screenings in future. These results are encouraging because the satisfaction among screened participants is a good indicator of quality of the service and the feedback received from participants can be used to enhance the program in future (Decker et al., 1999). These results also negate the observation which mentions that the satisfaction with mobile screening is not as good as static site (Yoon et al., 2009).

In our study a significant association was noted between age and overall satisfaction levels. Older women were more satisfied than younger women regarding mobile screening. Younger women may feel uncomfortable with

such kind of screening than older women as it involves screening in limited space and facilities. Studies have shown similar association between age and screening habits (Smokin et al., 2004). Significant association was also found between overall satisfaction and socioeconomic status of study participants with women belonging to lower socioeconomic status (≤ 2000) being more satisfied than women in the other two categories. Considering the fact that this study was carried out among low socio-economic women, they are more likely to be satisfied with mobile screening provided at their doorsteps since they cannot afford screening at higher centers where in they may have to spend for travel and screening tests. Of all the activities carried out in our study, changing rooms in the screening vehicle, the examination section inside the van and the procedures undertaken during screening were the components where satisfaction level varied significantly between highly and moderately satisfied women. It is to be hoped that improvement in these aspects may pave way for successful screening using mobile van in future.

Previous studies have indicated varied relation between satisfaction with screening activity and future participation in screening. Some studies have shown that satisfaction with previous screening will result in good future participation (Baker et al., 1998; Cozier et al., 2001; Drossaert et al., 2002; Smokin et al., 2004; Peipins et al., 2006; Liu et al., 2008) while others suggest that the two factors are weakly related (Jones et al., 2003; Stojadinovic et al., 2007). However in resource poor settings, satisfaction with the low cost screening methods in a mobile vehicle may lead to better screening compliance if it is accompanied by good health education regarding cancer and its prevention.

In conclusion, these findings suggest that satisfaction levels among women were encouraging regarding mobile cancer screening facility, with older women and women belonging to low socio-economic status showing more satisfaction levels. However, there is some scope for improvement in certain aspects of such screening modality. Mobile cancer screening may be a feasible option in a developing country like India where cancer of cervix and breast are important public health problems. However compliance to future screening with mobile facility needs to be studied to incorporate such a method in the National screening policy, if developed in future.

The participant women in the study are limited and all belong to low socioeconomic status. Results of this study may not be similar among women belonging to higher socio-economic strata.

Acknowledgements

The authors thank Department of Atomic Energy (Government of India), Women's Cancer Initiative and Tata Memorial Hospital for providing funds and support. The authors also thank Dr. Suchita Nagarsekar, Dr. Renuka Matti, Dr. Sharmila Pimple, Mrs. Parish Muzumdar, Miss Esha Chudasama, Health Workers of Department of Preventive Oncology and the six Non Governmental Organizations from Mumbai who co-ordinated in this programme for their kind cooperation. The authors

also acknowledge the women who participated in the programme. The authors declare that they have no conflict of interest.

References

- Baker DA, Lightfoot NE, Steggles S, Jackson C (1998). The experience and satisfaction of women attending breast cancer screening. *Oncol Nurs Forum*, **25**, 115-21.
- Basset AA (1985): Physical examination of the breast and breast self-examination; in Miller AB(ed): Screening of Cancer. Orlando, Academic Press.
- Cozier Y, Palmer JR, Rosenberg L et al (2001). Recent mammography use among African-American women. *Ethn Dis*, **11**, 188-91.
- Decker KM, Harrison M, Tate RB (1999). Satisfaction of women attending the Manitoba Breast Screening Program. *Prev Med*, **29**, 22-7.
- Drossaert CH, Boer H, Seydel ER (2002). Monitoring women's experiences during three rounds of breast cancer screening: results from a longitudinal study. *J Med Screen*, **9**, 168-75.
- Ferlay J, Shin HR, Bray F et al (2010). GLOBOCAN 2008. Cancer Incidence and Mortality Worldwide. Lyon: IARC Press. Available from: <http://globocan.iarc.fr>
- Ferreira MR, Dolan NC, Fitzgibbon ML, et al (2005). Health care provider-directed intervention to increase colorectal cancer screening among veterans: results of a randomized controlled trial. *J Clin Oncol*, **23**, 1548-54.
- Forrest P (1986). Breast cancer screening. Department of Social Security report. London: HMSO.
- Jones AR, Caplan LS, Davis MK (2003). Racial/ethnic differences in the self reported use of screening mammography. *J Community Health*, **28**, 303-16.
- Liu SY, Clark MA (2008). Breast and cervical cancer screening practices among disabled women aged 40-75: Does quality of the experience matter? *J Women's Health*, **17**, 1321-9.
- Mauad EC, Nicolau SM, Moreira LF, et al (2009). Adherence to cervical and breast screening programs is crucial to improving screening performance. *Rural Remote Health*, **9**, 1241.
- Peipins LA, Shapiro JA, Bobo JK, Berkowitz Z (2006). Impact of women's experiences during mammography on adherence to rescreening (United States). *Cancer Causes Control*, **17**, 439-47.
- Sankaranarayanan R, Wesley R (2003). A Practical Manual on Visual Screening for Cervical Neoplasia. IARC Technical Publication No. 41. Lyon, IARC Press.
- Smokin CP, McPhee SJ, Nguyen T, et al (2004). The effect of access and satisfaction on regular mammogram and Papanicolaou test screening in multiethnic population. *Med Care*, **42**, 914-26.
- Stojadinovic A, Henry LR, Peoples GE, et al (2007). Satisfaction with breast cancer screening and future screening participation. *Med Sci Monit*, **13**, CR422-9.
- Swaddiwudhipong W, Chaovakiratipong C, Nguntra P, et al (1999). A mobile unit: an effective service for cervical cancer screening among rural Thai women. *Int J Epidemiol*, **28**, 35-9.
- WHO (2008). International Agency for Research on Cancer. World Cancer Report.
- Yoon NH, Lee HY, Kwak MS, et al (2009). Comparison of satisfaction with cancer screening at Mobile Van and Static sites: National Cancer Screening Program in Korea. *Jpn J Clin Oncol*, **39**, 169-74.