Cancer related knowledge and behavior among women across various socio-economic strata: A study from Delhi, India

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Abstract

**Background:** Cancer is predicted to be an increasingly important cause of morbidity and mortality in the next few decades worldwide. One important step in reducing the burden of morbidity and mortality from cancers is awareness among the population about the causes and prevention of cancers. **Objective:** To study the knowledge and preventive behavior regarding common cancers among the women from an area of Delhi, India. **Study Design:** Cross-sectional study. **Setting:** Four purposively selected residential areas representing various socio-economic strata, in North-East Delhi. **Participants:** One thousand two hundred and six women in the age group 18-60 years. **Statistical Analysis:** Proportions, Chi-square test. **Results:** Majority of the women (43.9%) were graduates while 10.4% were illiterate. The awareness about breast cancer was maximum with 73.8% of the respondents being aware about it. The proportions of women aware about the other cancers were low. Only 52 (4.3%) had ever been for a preventive check-up for cancer. The most common cancer checkup for which the respondents reported visiting a hospital was, breast cancer. Among the respondents, 46 (3.8%) reported having a female member in their family who ever had cancer. Five hundred and seventy seven (47.8%) had not seen any message regarding cancers common in females in any mass media. Women with a higher education level, having a female family member with cancer, and those who could recall mass media message regarding cancers, were significantly more likely to have had a preventive cancer checkup for self. **Conclusion:** The knowledge and actual preventive behavior about cancers was found to be low among the women. Increased mass media exposure and targeted strategies can possibly increase the awareness and the cancer-related health behavior among the women.

Key words: Behavior, cancer, knowledge, women

Introduction

With the advancement of time, the world is witnessing a growing burden of non-communicable diseases. Cancer is predicted to be an increasingly important cause of morbidity and mortality in the next few decades, in all regions of the world. More than two-thirds of all cancer deaths occur in low- and middle-income countries.[1] Steps for reducing the burden of morbidity and mortality from cancers is the need of the time. One important step in this direction is awareness among the population about the causes and prevention of cancers. Early diagnosis based on awareness of early signs and symptoms improve survival particularly for breast, cervical, colorectal, skin, and oral cancers.[1] Realizing the importance, a new National Programme of prevention and control of cancer, diabetes and cardiovascular diseases, and stroke has been approved in India, which will cover cancer among other non-communicable diseases.[2]

Women in India represent an especially vulnerable group for cancer due to the low priority to health, and barriers in access to healthcare among them for various reasons. While breast cancer is the commonest cancer among females worldwide, in India it is cancer of the cervix uteri that is the most common.[1] With the rising incidence of breast and cervical cancers in developing countries health planners are now faced with the challenges of how to provide prevention, early detection, diagnosis, treatment and care for growing numbers of women every year.[10] The present study was carried out with an attempt to assess the knowledge and preventive behavior regarding common cancers among the women from an area of Delhi.

Materials and Methods

The study comprised of a cross-sectional survey of women who were homemakers in the age group of 18-60 years residing in either of a high income group (HIG), a middle income group (MIG), a low income group (LIG) and an urban slum colony in North-East Delhi, for more than 6 months. These four areas were chosen to get representation of the women from different socio-economic strata. A group of 30 undergraduate medical students were given training in data collection. Each student was asked to interview 40 homemakers, selecting 10 women from each of the four different types of colonies to represent four different economic strata of society, thus giving a total sample size of 1200 respondents. All respondents were informed that their responses would remain anonymous, and informed consent was obtained.
As this was a students’ project, the study was reviewed and approved by departmental experts. The institutional ethics committee did not have to be consulted as the study was an anonymous, unlinked interview of respondents and no intervention was involved. The methodology was similar to a previous study undertaken in the same area.[4] A pre-tested semi-open ended questionnaire was prepared by the students. Questions were based on socio-demographic profile, mass-media messages on TV, newspaper, magazines, radio and roadside hoardings, their recall and knowledge, attitude and practices among the homemakers about various health related topics including TB, organ donation, common cancers, smoking. The questionnaire was pilot tested by the supervisors among homemakers not included in the final study and suitably modified before use in the final data collection. The data collection was supervised and also randomly checked by the investigators.

Statistical analysis of the data included calculating means and proportions, and use of Chi-square test for significance. In this paper, we present data related to knowledge and preventive behavior regarding common cancers among the women.

**Results**

The women included in the study were almost equally distributed in age groups of 18-30, 31-40, 41-50, and 51-60 years. Majority of the women (43.9%) were graduates while 10.4% were illiterate. A large majority (97.7%) were currently married. Most (93.2%) were Hindus by religion. There was a strong correlation between the type of locality (Slum, LIG, MIG, and HIG) and the self-reported income group (Spearman’s correlation coefficient = 0.64, P < 0.001).

The women were asked about the common cancers they know about that may occur in women. Multiple responses were allowed and free listing was done. The results are shown in Table 1. The awareness about Ca breast was maximum with 73.8% of the respondents being aware about it, 45.2% knew about Ca uterus, 27.0% knew about Ca cervix while 11.9% mentioned Ca lung. The proportions of women aware about the other cancers were less than 10% each.

The behavior of the women with regards to cancer prevention was assessed by asking about their first visit to a health facility for preventive cancer checkup. An overwhelming majority (95.7%) had never been for a preventive checkup for cancer, while another 30 (2.5%) reported having had a first ever cancer check-up visit only in the last year (preceding the day of interview), and 22 (1.8%) more than a year ago. The most common cancer checkup for which the respondents reported visiting a hospital was Ca breast [Table 2].

Among the respondents, 46 (3.8%) reported having a female member in their family who ever had cancer, while remaining 1160 (96.2%) did not have a female cancer patient in their family. The commonest cancer reported among a female family member was Ca breast (14 of 46) followed by Ca stomach (7 of 46).

The respondents were asked to mention the mass media where they could recall seeing some message regarding cancers common in females [Table 3]. The maximum number (577; 47.8%) had not seen such a message in any mass media. Another 409 (33.9%) could recall seeing a message in one media, while only 4.9% of the women had been exposed to such messages in more than two mass media.

The respondents’ attitude toward cancer prevention was assessed by asking a single question whether ill-effects of cancers can be prevented through regular timely check-ups. The response categories were arranged in a Likert’s scale. While 241 (20.0%) strongly agreed, 689 (57.1%) agreed, 97 (8.0%) responded as “disagree” and another 38 (3.2%) marked their response as “strongly disagree.” The remaining 141 (11.6%) gave response as “don’t know.” Women with lower education (less than graduate) and higher age group (41-60 years) were significantly more likely to have negative attitude that ill-effects of cancer cannot be prevented early (P = 0.05 and <0.001, respectively).

**Table 1: Awareness about the common cancers that may occur in women, as mentioned by the respondents (n=1206)**

| Cancer that may occur in women | Number of women who mentioned it | % |
|-------------------------------|---------------------------------|---|
| Breast                        | 890                             | 73.8 |
| Uterus                        | 545                             | 45.2 |
| Cervix                        | 326                             | 27.0 |
| Did not answer                | 158                             | 13.1 |
| Lung                          | 143                             | 11.9 |
| Stomach                       | 85                              | 7.0  |
| Eye                           | 40                              | 3.3  |
| Gall bladder                  | 33                              | 2.7  |
| Blood                         | 32                              | 2.7  |
| Oral                          | 13                              | 1.1  |
| Throat                        | 12                              | 1.0  |
| Neck                          | 8                               | 0.7  |
| Ovary                         | 8                               | 0.7  |
| Bone                          | 8                               | 0.7  |
| Liver                         | 5                               | 0.4  |
| Brain                         | 4                               | 0.3  |
| Kidney                        | 2                               | 0.2  |
| All organs                    | 2                               | 0.2  |
| Pancreas                      | 1                               | 0.1  |

Note: Total does not add up to 100% as multiple responses were allowed

**Table 2: Cancer checkup for which the respondents reported visiting a hospital (n=1206)**

| Cancer checkup for which hospital visited | n | % |
|------------------------------------------|---|---|
| Breast                                   | 22 | 1.8 |
| Cervical                                 | 8  | 0.7 |
| Uterus                                   | 6  | 0.5 |
| Stomach                                  | 2  | 0.2 |
| Blood                                    | 1  | 0.1 |
| Colon                                    | 1  | 0.1 |
| Lung                                     | 1  | 0.1 |
| Not specified                             | 11 | 0.9 |
The associations with positive behavior in terms of having been for a preventive cancer checkup for self, are depicted in Table 4. Women with a higher education level, having a female family member with cancer, and those who could recall mass media message regarding cancers common in females were significantly more likely to have ever visited a health facility for a preventive cancer checkup for self. A sensitivity analysis was also done by omitting the women with a family member having cancer (n = 46) and seeing the associations only in the group of respondents without a family member with cancer (n = 1160). There was no difference in the statistical significance of the associations.

**Discussion**

In this study of 1206 women from purposively selected residential colonies of East Delhi representing different socio-economic strata, the awareness about cancers in females was enquired. Carcinoma breast was the most well-known cancer with nearly three-fourth of the women having heard about it. The awareness about other cancers that could affect women, including Ca cervix, was found to be poor. The distribution of responses by the women regarding the most common female cancers were similar to that observed by Mon et al. in their study.[10] Several previous studies have found that the awareness about breast cancer *per se* is relatively high among women.[6-9] However, even for breast cancer, there is lack of awareness about its causes, prevention, and screening. Cervical cancer is the second-commonest cancer in women worldwide and is actually the commonest in India.[11] Still, previous studies have found awareness about cervical cancer disease and its details to be woefully lacking among women, even those with higher education.[16-13] Though, a study from Estonia had found high awareness among women about cancer screening, this could be ascribed to the fact that it was done in a country where a nationwide screening program for cervical cancer is running.[14]

In the present study, only 4.3% of the women had ever been to a health facility for a preventive check-up for cancer. While periodic checkups may not be recommended for all the cancers occurring in females, definitely the women require a minimum once-in-a-lifetime preventive checkup to rule out certain cancers. The very low prevalence of ever having visited a health facility for such a preventive check, puts the women at a significant risk of cancer detection at late stages. Similar to our findings, a study among women in Mumbai too had found that only 6.6% of women had undergone prior cancer screening.[15] Early detection has led to a decline in the incidence and mortality of certain cancers in developed countries, not seen in less developed communities.[16]

On being asked about the cancers, if any, among their female family members, the respondents reported Ca breast as the commonest among them. Ca cervix was reported only among the female family member of a single respondent. While both these cancers figure as the commonest ones among Indian women,[17] our contrasting findings can probably be ascribed to the low number (46) of subjects who had a female relative with cancer.

In the present study, nearly one in two (47.8%) women could not recall seeing any mass media message related to female cancers. This shows that either the coverage of cancer prevention messages in mass media is still inadequate, or the recall value is not high. The mass media can play an important role in educating women about cancer and its prevention and its function should be optimized.[12] However, trying to improve awareness of the disease and its prevention through mass media alone, without individual communication may not be fully effective.[18] A recent systematic review of studies among Asian women found that media campaigns alone may be ineffective in increasing cancer screening uptake, and that employing a combination of multiple strategies is more likely to be successful than single interventions.[19] The use of local celebrities as role models has been recommended.

### Table 3: Number of mass media where some message regarding cancers common in females was seen by the respondents (n=1206)

| Number of mass media where message regarding cancers common in females seen | n   | %  |
|----------------------------------------------------------------------------|-----|----|
| 0                                                                         | 577 | 47.8|
| 1                                                                         | 409 | 33.9|
| 2                                                                         | 161 | 13.3|
| 3                                                                         | 50  | 4.1 |
| 4                                                                         | 8   | 0.7 |
| 5                                                                         | 1   | 0.1 |
| **Total**                                                                 | **1206** | **100.0** |

### Table 4: Association of preventive cancer checkup with various characteristics of the respondents (n=1206)

| Characteristic                                | Visited a health facility for a preventive cancer checkup for self | Never (n=1154) | At least once (n=52) | P value for difference |
|-----------------------------------------------|-------------------------------------------------------------------|---------------|---------------------|-----------------------|
| Age (in years)                                |                                                                   |               |                     |                       |
| 20-40                                         | 592 (96.6)                                                       | 21 (3.4)      | 0.12                |                       |
| 40-60                                         | 562 (94.8)                                                       | 31 (5.2)      |                     |                       |
| Education level                               |                                                                   |               |                     |                       |
| Less than college graduation                  | 655 (96.8)                                                       | 22 (3.2)      | 0.04               |                       |
| College graduate or higher                    | 499 (94.3)                                                       | 30 (5.7)      |                     |                       |
| Has some family member (female) with cancer   |                                                                   |               |                     |                       |
| No                                           | 1113 (95.9)                                                      | 47 (4.1)      | 0.04                |                       |
| Yes                                          | 41 (89.1)                                                        | 05 (10.9)     |                     |                       |
| Could recall mass media ad regarding cancers common in females | | | | |
| No                                           | 561 (97.2)                                                       | 16 (2.8)      | 0.01                |                       |
| Yes                                          | 593 (94.3)                                                       | 36 (5.7)      |                     |                       |

*Statistically significant difference at <0.05, *a* Fisher’s exact test
to increase public attention as well as effect behavioral change in cancer screening practices among women.[12]

Majority (77.1%) of the women in our study agreed that ill-effects of cancers can be prevented through regular timely check-ups. In a study in Mumbai too, 55.84% of the women interviewed believed cancer to be preventable.[11]

Having a positive attitude that cancer and its potential ill-effects are preventable can be one of the factors for the person’s positive health behavior of seeking screening for cancers, as per the theory of planned behavior.[20]

The present study found significant associations of positive behavior (preventive breast checkup visit) with higher education level, having a female family member with cancer, and recall of mass media ad regarding cancers common in females. In a Zimbabwe study, most important factor associated with cancer screening was found to be formal education.[21] Keeney et al. too had observed lower level of education to be a factor for negative attitudes towards cancer and cancer prevention.[22] Audrain et al. had found that 75% of the first-degree relatives of recently diagnosed breast cancer patients perceived their risk to be higher than women not having a family history of breast cancer.[23]

Some of the limitations of the present study include the fact that only self-reported behaviors (e.g., preventive check-ups) were considered. The association between the mass media exposure and positive cancer prevention behavior cannot be ascribed causality, as the temporal relation cannot be established in a cross-sectional study design. The strengths of the study include a relatively large sample size and the purposive representation of study areas representing different socio-economic classes, so that responses from women across varied socio-economic groups could be included in the sample and compared.

**Conclusion**

In the present study, the knowledge about various cancers that occur in females was found to be low among the 1206 women interviewed in an area of Delhi. The actual preventive behavior in terms of having been for a preventive check-up visit for cancer, was also found to be quite low. Increased mass media exposure regarding messages related to female cancer prevention and targeted focus especially on the women with low education, can possibly increase the awareness about cancers and the cancer-related health behavior among the women.

**References**

1. World Health Organization. Global status report on noncommunicable Diseases 2010. Geneva: World Health Organization; 2011. p. 10.
2. Ministry of Health and Family Welfare, Government of India. Annual report to the people of India December 2011. Delhi: MoHFW, GoI; 2011. p. 9.
3. Reeler A, Giao Y, Dare L, Li J, Zhang AL, Saba J. Women’s cancers in developing countries: From research to an integrated health systems approach. Asian Pac J Cancer Prev 2009;10:519-26.
4. Sharma AK, Sharma R. Impact of mass media on knowledge about tuberculosis control among homemakers in Delhi. Int J Tuberc Lung Dis 2007;11:893-7.
5. Mon MM, Mon M, Than KK. Women’s awareness, knowledge and perceived magnitude regarding common female cancers in Yangon, Myanmar. Asian Pac J Cancer Prev 2009;10:1047-50.
6. Al-Dubai SA, Qureshi AM, Saif-Ali R, Ganasekeran K, Alwan MR, Hadi JI. Awareness and knowledge of breast cancer and mammography among a group of Malaysian women in Shah Alam. Asian Pac J Cancer Prev 2011;12:2531-8.
7. Masoumi SJ, Morandi F. The knowledge and practice of female employees of Shiraz University of Medical Sciences on screening methods of breast cancer, 2006. Iran Red Crescent Med J 2007;10:133-4.
8. Montazeri A, Vahdaninia M, Harirchi I, Harirchi AM, Sajadian A, Khaleghi F, et al. Breast cancer in Iran: Need for greater women awareness of warning signs and effective screening methods. Asia Pac Fam Med 2008;7:6.
9. Somdatta P, Baridalyne N. Awareness of breast cancer in women of an urban resettlement colony. Indian J Cancer 2008;45:149-53.
10. Saha A, Chaudhury AN, Bhowmik P, Chatterjee R. Awareness of cervical cancer among female students of premier colleges in Kolkata, India. Asian Pac J Cancer Prev 2010;11:1085-90.
11. Rama CH, Villa LL, Paglisi S, Andreoli MA, Costa MC, Aoki AL, et al. Awareness and knowledge of HPV, cervical cancer, and vaccines in young women after first delivery in São Paulo, Brazil: A cross-sectional study. BMC Womens Health 2010;10:35.
12. Wong LP, Wong YL, Low WY, Khoo EM, Shuib R. Knowledge and awareness of cervical cancer and screening among Malaysian women who have never had a Pap smear: A qualitative study. Singapore Med J 2009;50:49-53.
13. Hoque E, Hoque M. Knowledge of and attitude towards cervical cancer among female University students in South Africa. South Afr J Epidemiol Infect 2009;24:21-4.
14. Kivistik A, Lang K, Baili P, Antilla A, Veerus P. Women’s knowledge about cervical cancer risk factors, screening, and reasons for non-participation in cervical cancer screening programme in Estonia. BMC Womens Health 2011;11:143.
15. Kumar YS, Mishra G, Gupta S, Shastri S. Level of cancer awareness among women of low socioeconomic status in Mumbai slums. Asian Pac J Cancer Prev 2011;12:1295-9.
16. Rehman MU, Buttar QM, Khawaja MI, Khawaja MR. An impending cancer crisis in developing countries: Are we ready for the challenge? Asian Pac J Cancer Prev 2009;10:719-20.
17. Singh AA. India can do more for breast and cervical cancer control. Asian Pac J Cancer Prev 2009;10:527-30.
18. Othman NH, Rebolj M. Challenges to cervical screening in a developing country: The case of Malaysia. Asian Pac J Cancer Prev 2009;10:747-52.
19. Lu M, Moritz S, Lorenzetti D, Sykes L, Straus S, Quan H. A systematic review of interventions to increase breast and cervical cancer screening uptake among Asian women. BMC Public Health 2012;12:413.
20. Azjen I. The theory of planned behavior. Organ Behav Hum Decis Process 1991;50:179-211.
21. Mupepi SC, Sampselve CM, Johnson TR. Knowledge, attitudes, and demographic factors influencing cervical cancer screening behavior of Zimbabwean women. J Womens Health (Larchmt) 2011;20:943-52.
22. Keeney S, McKenna H, Fleming P, McIlfarrick S. Attitudes to cancer and cancer prevention: What do people aged 35-54 years think? Eur J Cancer Care (Engl) 2010;19:769-77.
23. Audrain J, Lerman C, Rimer B, Cella D, Steffens R, Gomez-Caminero A. Awareness of heightened breast cancer risk among first-degree relatives of recently diagnosed breast cancer patients. The High Risk Breast Cancer Consortium. Cancer Epidemiol Biomarkers Prev 1995;4:561-5.

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