

## Original Article

# Cancer Awareness amongst Nurses in a Tertiary Care Hospital in North Delhi, India

## Abstract

**Background:** Nursing staff is the first of a constant line of contact with the patients and serve a prodigious responsibility. They play a pivotal role in disseminating knowledge to the patients in their daily practice. The present study was conducted to assess the level of cancer awareness among hospital nurses, identify the knowledge gaps and to incorporate them into training. Cancer is the most prominent cause of morbidity and mortality in both developed and developing countries like India where nearly 5 lakh deaths per year occur according to the recent GLOBOCAN data.

**Materials and Methods:** A cross-sectional survey was conducted among nurses in a tertiary care hospital in North Delhi. Of 458 employed nurses, 53.3% nurses working in the hospital participated in the study on a voluntary basis. A structured pretested questionnaire was administered to the study subjects. The questionnaires were coded, and information on personal details was not included. To warrant an effective measure of study outcomes, a Cancer Awareness Score (CAS) was developed. CAS of individual participants was achieved by dividing the total average score of each subject by ten that will help in quantifying the cancer awareness. A total of 244 nurses (53.3%) out of 458 employed were surveyed. A total of 146 forms were filled manually and 78 forms were completed electronically. **Results:** The return rate was 65.5% of the CAS. The completion rate was 100% and the rejection rate was zero. Of these 223 were female and 21 were male. The study subjects were in the age range of 19–56 years. Out of the 244 nurses, 75.81% were aware about general aspects of cancer. 77.5% of the nurses acknowledged that cancer is a serious health problem in India, and 79.9% were aware of the increasing incidence of cancer. About 66.4% subjects knew that cancer is a lifestyle disease. About 75.4% were aware that cancer is preventable, and 78.7% agreed that early detection is possible. About 23% believed that all lumps are cancerous. Almost 75% of the study subjects were aware of warning symptoms of cancer, nearly 90% of them were aware about all the causative factors. In this study, 21% of nurses were observed to have one or more myths about cancer during the survey. 23.4% believed that cancer is contagious; 25% of the study subjects believed that cancer is familial, 13.9% believed that cancer is due to God's curse! Another alarming observation is that they believe that procedures such as biopsy (17%) or surgery (21.7%) can spread cancer! It is vital to work on removing these myths. **Conclusion:** Authors perceive that the study subjects lack adequate knowledge about cancer. The total average score of the study subjects was <75%. General awareness about cancer treatment needs to be reinforced. There is a pressing need to bust the myths by using appropriate information education communication strategies. Repeated training of nurses on cancer awareness is warranted. If well equipped with knowledge on cancer, they can further impart information to patients, caregivers and other hospital staff.

**Keywords:** Cancer awareness, Cancer Awareness Score, myths, nurses

## Background

Cancer is the most prominent cause of morbidity and mortality in both developed and developing countries.<sup>[1]</sup> It is one of the important causes of death in India with 13,000 deaths daily and close to 5 lacs every year.<sup>[2]</sup> The International Agency for Research on Cancer GLOBOCAN project<sup>[1]</sup> has estimated that India's annual cancer burden will be >1.7 million by 2035.

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Survival rates in India are quite low, less than half of the advanced countries in many types of cancer.<sup>[3]</sup> Accessibility, affordability, advanced stages, lack of awareness contribute to same.<sup>[4]</sup> Creating awareness on hazards of cancer and the importance of screening and early detection can decrease the cancer mortality risk.<sup>[5]</sup>

In hospitals, nursing staff is the first of constant line of contact with the patients and serve a prodigious responsibility. They play a pivotal role in disseminating

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knowledge to the patients in their daily practice. Thus, they are in a strong position to impart health education. It is important that the nursing staff is equipped with knowledge regarding cancer prevention and early detection. Current nursing education in India may not be able to meet this requirement. The present study was conducted to assess the level of cancer awareness amongst hospital nurses, identify the knowledge gaps and to incorporate them in training.

### Objectives

1. To measure the level of cancer awareness in causation, prevention and symptoms of cancer amongst nurses, in a tertiary care hospital in North Delhi, India
2. To identify the knowledge gaps and incorporate them in training.

## Materials and Methods

### Study design

A cross-sectional survey was conducted among nurses in a tertiary care hospital in North Delhi.

### Study subjects

Of 458 employed nurses, 53.3% nurses working in the hospital participated in the study on a voluntary basis [Table 1]. Confidentiality of their responses was assured.

### Study instrument

A structured pretested questionnaire was administered to the study subjects. The questionnaires were coded and information on personal details were not included. The structured questions were very simple, basic and were aimed to test the basic awareness rather than very advanced aspects of cancer.

The questionnaire assessed knowledge of cancer awareness in the following areas:

1. General cancer awareness
2. Warning signs and symptoms of cancer
3. Causative factors of cancer
4. Myths and facts (cancer statistics)
5. Knowledge of cancer prevention
6. General aspects of cancer treatment
7. Decision-making in cancer treatment.

The questionnaire comprised gradient answers such as “yes,” “no.” “don’t know.” The questionnaire was uploaded on hospital intranet and the link was shared with all the hospital staff. The questionnaires were also distributed manually. The heads of each department were requested to encourage the staff to fill the questionnaire within a span of 1 month. As part of follow up formal and informal efforts were carried out at the individual level to fill the forms. Follow-up through E-mails, telephone calls and personal request were carried out.

### Cancer awareness score

To warrant an effective measure of study outcomes, a Cancer Awareness Score (CAS) was developed. CAS of individual participants was achieved by dividing the total average score of each subject by ten. Also, the total average score of nurses was divided by ten to arrive at average CAS. The score was used to evaluate the level of awareness amongst the study population. Those who scored <4 were considered “below average,” 5–6 “average,” 7–8 “good” and 9–10 “very good.”

### Data entry and analysis

The questionnaires filled electronically were directly entered in the central data base and maintained. The questionnaires filled manually were entered in the computer by the data operator in central data base. Accuracy of the data was checked by the next level of supervision. Data was transported to the SPSS version 16.0 software and the data was analyzed using the same software.

## Results

A total of 244 nurses (53.3%) out of 458 employed were surveyed. One hundred and forty six forms were filled manually and 78 forms were completed electronically. The return rate was 65.5%. The completion rate was 100% and the rejection rate was zero [Table 2]. Of these 223 were females and 21 were males. The study subjects were in the age range of 19–56 years.

### General awareness

Out of the 244 nurses, 75.81% were aware about general aspects of cancer [Table 3]. 77.5% of the nurses acknowledged that cancer is a serious health problem in India, and 79.9% were aware of the increasing incidence of cancer. 66.4% subjects knew that cancer is a lifestyle disease. 75.4% were aware that cancer is preventable, and 78.7% agreed that early detection is possible. 23% believed that all lumps are cancerous.

### Warning symptoms of cancer

Almost 75% of the study subjects were aware about warning symptoms of cancer [Table 4], with a majority of them were aware of the all the warning symptoms of cancer and rest were aware of some of the symptoms.

### Causative factors

About 90% of them were aware about all the causative factors [Table 5], 8.8% were not aware and 1.2% did not know about the causes.

### Myths of cancer

In this study, 21% of nurses were observed to have one or more myths about cancer during the survey, while 77.8% did not carry myths about cancer [Table 6]. Surprisingly, 23.4% believed that cancer is contagious, 25% of the study

**Table 1: Demographic details of study subjects**

Demographics	
Total no. *of nurses participated	244
Total no. *of male nurses	21
Total no. *of female nurses	223
Age range	19-56 years
*Number	

**Table 2: Participation of study subjects**

Return rate	74% (146 forms returned manually)	78 forms completed electronically
Completion rate	100%	-
Rejection rate	0	-
Percentage of nurses participated	53.3% (224 out of 458)	-

**Table 3: General cancer awareness amongst nurses. (a) Answers of the participants. (b) Group average score**

Questions	Yes	No	Do not know
Is cancer a serious health problem?	77.5	22.5	0
Lifestyle disease?	66.4	32	1.6
Is cancer showing an increase trend in occurrence?	79.9	19.3	0.8
Is cancer preventable ?	75.4	23	1.6
Is early detection possible?	78.7	18.9	2.5
All lumps are cancerous?	22.5	77	0.4
Total average score	66.7	32.1	1.38
<b>Group average score</b>			
Appropriate			75.81
Inappropriate			23.03
Do not Know			1.38

**Table 4: Awareness of warning symptoms of cancer amongst nurses. (a) Answers of the participants. (b) Group average score**

Questions	Yes	No	Do not know
Change in bowel and bladder habits	70.9	28.7	0.4
Sore that does not heal	70.9	23	6.1
Unusual bleeding or discharge from any natural orifice	75	24.2	0.8
Thickening or lump in the breast or elsewhere	76.2	23	0.8
Indigestion or difficulty in swallowing	73	26.2	0.8
Obvious change in a wart or mole	76.2	20.5	3.3
Nagging cough or hoarseness	68	29.9	2
Unexplained weight loss	78.7	18.4	2.9
Prolonged fever	85.2	11.1	3.7
Total average score	74.9	22.77	2.31
<b>Group average score</b>			
Appropriate			74.9
Inappropriate			22.77
Do not know			2.31

subjects believed that cancer is familial, 13.9% believed that cancer is due to God's curse! Another alarming observation

**Table 5: Awareness of causative factors of cancer amongst nurses. (a) Answers of the participants. (b) Group average score**

Causative factor	Percentage
Alcohol	0.8
All of the above	90
Chewing Tobacco	1.6
None of the above	0.4
Smoking	0.4
Unhealthy Diet	0.4
Others	4.8
Do not know	1.2
<b>Group average score</b>	
Appropriate	90
Inappropriate	8.8
Do not know	1.2

**Table 6: Myths of cancer amongst nurses. (a) Answers of the participants. (b) Group average score**

Questions	Yes	No	Do not know
Do you think biopsy can spread the cancer?	16.8	82.4	0.8
Do you think operation for tumor causes spread of cancer?	21.7	77	1.2
Do you think cancer is contagious?	23.4	75.4	1.2
Do you think cancer is curable?	75	23.4	1.6
Do you think cancer is gods curse?	13.9	84	2
Do you think cancer runs in families all the times in all cases	24.34	73.51	2.14
Total average score	29.19	69.28	1.49
<b>Group average score</b>			
Appropriate			77.88
Inappropriate			20.59
Do not know			1.49

is that they believe that procedures such as biopsy (17%) or surgery (21.7%) can spread cancer! [Table 6]. It is vital to work on removing these myths.

### Cancer statistics

More than 65% of the participants were unaware about Cancer statistics in India. More than half subjects were unaware of the most common cancer in men and women, the cancer incidence and deaths. However, 33% of the study subjects had knowledge on cancer statistics in India [Table 7]. It is important to empower nurses with the information on increasing burden of cancer in India and common cancers in men and women. Cancer statistics help in strengthening the cancer awareness program.

General aspects of cancer treatment: It was encouraging to observe that 75% believed that cancer is curable (75%) especially in early stages (77.9%), while 18% thought that there is no treatment for cancer and 20.5% believed that

cancer always recurs and kills. Regarding the pain, 37% believed that cancer treatment is painful, 38.9%.

Believed that pain is sign of advanced cancer and 45.1% shared the view that all cancer patients experience pain. Almost 75% of study subjects possessed optimal knowledge on general aspects of cancer treatment with <25% of the study subjects having suboptimal knowledge [Table 8].

### Cancer prevention

Majority of subjects (83.2%) believed that cancer is preventable and 82% believed that screening is the best way of early detection. Knowledge of prevention of cancer by Hepatitis B vaccine (86.5%) and HPV vaccine (74.6%) was observed. Surprisingly the obesity as a risk factor for cancer was recognised by 47.1% subjects. In all, more than 66% of study subjects had adequate knowledge about cancer prevention and <3% of study subjects had no knowledge about cancer prevention [Table 9].

### Decision making of treatment

More than 80% of the patients believed that diagnosis of cancer, prognosis, treatment details should be discussed with patients and caregivers. Regarding the decision makers, they believed that patients (48.4%) or caregivers (28.3%) should take the treatment decision while 17.2% believed that doctor should decide the treatment. While more than 80% of the study subjects believed that patient and caregivers should participate in decision-making, whereas <15% of the subjects did not [Table 10a]. The total average score of nurses was 84.72 for appropriate responses and 14.1 for inappropriate responses [Table 10b].

To get an objective view of the quantum of cancer awareness amongst the nurses, CAS was applied. CAS was calculated as a group and on individual basis to measure the level of cancer awareness. The group CAS of the study subjects was 7.2/10 and as per the scale the findings revealed a need for improvement on cancer awareness [Table 11]. Only 4% of nurses had desirable level with a score of above 8, while 54.5% had score of 6–7, 18.8% had average and 22.5% below average. In all 95% required training and improvement in their level of knowledge.

### Discussion

The important immediate solution to rising cancer incidence and mortality in India early diagnosis, is increasing cancer awareness through all possible means. Nurses and other staff in the hospital coming in constant and direct contact with patients and care givers. Thus, it is essential for the nursing staff to have sufficient cancer knowledge so that they can impart the appropriate awareness. On the contrary, inappropriate knowledge or presence of myths not only cannot achieve the purpose but also can lead to undesirable consequences. This study conducted with sole purpose of

**Table 7: Awareness amongst nurses on cancer statistics. (a) Answers of the participants. (b) Group average score**

Questions	Yes	No	Do not know
Do you know the no. *of new cancer patients in 2016 in india	38.9	61.1	2.5
Do you know the no. * of people of succumbed to cancer in 2016 in india	29.9	70.1	3.7
Most common cancer in men in india is?	19.3	80.7	0.8
Most common cancer in women in india is?	45.5	54.5	0.8
Total average score	33.4	66.6	1.95
<b>*Number</b>			
<b>Group average score</b>			
Appropriate			33.4
Inappropriate			66.6
Do not know			1.95

**Table 8: Awareness amongst nurses on general aspects of cancer treatment. (a) Answers of the participants. (b) Group average score**

Questions	Yes	No	Do not know
Do you think cancer is curable?	75	23.4	1.6
Is cancer curable if detected early?	77.9	18	4.1
Do you think cancer treatment is painful?	36.5	61.1	2.5
Do you think there is no treatment for cancer?	18	79.9	2
Do you think cancer always recurs and always kills?	20.5	74.6	4.9
Do you think all cancer patients experience pain?	45.1	54.9	0
Do you think pain is a sign of advanced cancer?	39.8	60.2	0
Do you think pain in cancer be relieved?	70.9	28.3	0.8
Total average score	47.96	50.05	2.65
<b>Group average score</b>			
Appropriate			66.76
Inappropriate			31.25
Do not know			2.65

measuring basic aspects of cancer awareness among nurses reveals some important observations. Satisfactory aspects were in general awareness (75%), warning symptoms (75%) causations (80%), prevention (78%), treatment (68%) decision-making (83%) [Table 10c]. Unsatisfactory were knowledge of cancer statistics in India (26%). An observation of concern was existence of myths in 30% nurses. While group average CAS was 72% needing improvement, only 4% nurses had adequate knowledge and rest needed improvement of varying degrees.

The situation in other parts of world and India is varying. Shahriary *et al.*<sup>[6]</sup> also reported a low level of awareness among nursing staff on cancer pain management. In another study conducted in Ethiopia also reported similar results.<sup>[7]</sup> A similar study conducted in South Africa<sup>[8]</sup> revealed that awareness of oral cancer risk factors and



**Table 9: Awareness amongst nurses on cancer prevention. (a) Answers of the participants. (b) Group average score**

Questions	Yes	No	Do not know
Do you think cancer be prevented	83.2	16	0.8
Do you think obesity is a risk factor for cancer	47.1	51.2	1.6
Do you think cancer screening help to detect cancer at early stage	82	17.2	0.8
Do you know HPV vaccine is useful for which cancer	74.6	25.4	0
Do you know HEPB vaccine is useful for which cancer	86.5	13.2	0
Total average score	74.68	24.6	1.06
<b>Group average score</b>			
Appropriate			74.68
Inappropriate			24.6
Do not know			1.06

**Table 10: Awareness amongst nurses on decision making of treatment. (a) Answers of the participants. (b) Awareness amongst nurses on decision making of treatment. Answers of the participants. (c) Group average score**

Questions	Caregiver	Doctor	Friend	Patient	Do not know
Who should take the decision in a patient of 75 years old male	28.3	17.2	4.5	48.4	1.6
Questions			Yes	No	Do not know
Should the patient be told about prognosis?			86.1	12.7	1.2
Should patient regardless the age to be told about the diagnosis?			75.4	24.2	0.4
Should the patient be explained about the treatment?			88.1	10.2	1.6
Should relatives discuss with patient about treatment and outcome			89.3	9.4	1.2
Total average score			84.72	14.1	1.1
Group average score					
Appropriate					84.72
Inappropriate					14.1
Do not know					1.1

**Table 11: Average CAS of participated nurses and its interpretation: Needs improvement**

Score	Number of nurses	Interpretation	Way forward
<4	55 (22.5%)	Below average	Needs training
4-6	46 (18.8%)	Average	Needs training
6-8	133 (54.5%)	Good	Needs improvement
8-10	10 (4.09%)	Very good	Desirable

clinical signs amongst the nurses was poor. Several other studies reported a low awareness of breast cancer risk factors among nurses.<sup>[9-11]</sup> Knowledge about cancer cervix,

screening and practice of Pap smear was reported to be low among nursing staff in Sikkim, India.<sup>[12]</sup>

Several myths are prevalent in general public and the questionnaire consisting these myths revealed interesting observations. Prevalence of cancer related myths amongst nurses such as God's curse (13%), spread with biopsy (17%) or surgery (22%) or contagiousness (24%) as observed in this study can be disastrous. These are not unique to India. In a hospital-based study witchcraft and karma were perceived as reasons for suffering from cancer,<sup>[13]</sup> and in another, patients believed "bad karma" was the reason for their illness.<sup>[14]</sup> Myths related to cancer, present major challenges to cancer prevention and control and hence should be addressed.<sup>[15,16]</sup> Display of posters in their work areas will help them to remove these myths.

More studies are required to ascertain the level of cancer awareness amongst nurses in other parts of the country and understand the need to revise the nursing curriculum.

Meanwhile, there is an immediate need for the hospitals and oncologists to commence short training modules for nurses to improve the level of cancer awareness.

## Conclusion

Authors perceive that the study subjects lack adequate knowledge about cancer. The total average score of the study subjects is <75%. General awareness about cancer treatment needs to be reinforced. There is a pressing need to bust the myths by using appropriate information education communication strategies such as displaying appropriate posters depicting facts and highlights about cancer at nursing stations. Information dissemination in an integral part of the nursing role and inappropriate message communicated could be detrimental to the patients.

Repeated training of nurses on cancer awareness is warranted. Nursing staff is the backbone of healthcare and play a vital role in promoting cancer screening and healthcare seeking practices. They are regularly assisting patients with cancer<sup>[6]</sup> and hence patients look up to them for information and advice. If well equipped with knowledge on cancer, they can further impart information to patients, care givers and other hospital staff.

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## Conflicts of interest

There are no conflicts of interest.

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