A Study to Assess the Effectiveness of Awareness Programme on Knowledge Regarding Bladder Cancer among Workers in Selected Textile Industries at Bengaluru

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ABSTRACT

Cancer, a potentially fatal disease and the second leading cause of mortality worldwide after cardiovascular disease, poses significant threats to health and family. Bladder cancer, the ninth most common cancer globally, was estimated to have 430,000 new cases in 2012 and ranks as the sixth most common cancer among men. The textile industry, a major global sector, exposes workers to numerous chemicals including dyes, solvents, optical brighteners, and both natural and synthetic fiber dusts, which can adversely affect their health. Many of these substances have been identified as mutagenic and carcinogenic. Continuous exposure to these chemicals underscores the need to assess cancer risk at various job levels within the textile industry to evaluate overall risk and develop effective cancer prevention strategies.

Method: An evaluative approach was adopted for the study with one group pre-test and post-test design. 60 workers were selected using non probability purposive sampling technique and the data was collected using a structured knowledge questionnaire.

Result: The analysis showed that in the pre-test, 55% of the sample had inadequate knowledge, while in the post-test, 55% had moderate knowledge. The mean post-test score (20.61 ± 3.57) was significantly higher than the pre-test score (10.85 ± 4.04). The mean percentage of post-test scores (68.7%) also surpassed that of the pre-test (36.16%). The t-value ($t59 = 20.18$, $p < 0.05$) was significantly greater than the table value ($t59 = 1.67$), and no significant association was found between pre-test scores and selected demographic variables.

Conclusion: Findings of the present study revealed that awareness programme is an effective teaching strategy to enhance the knowledge of workers regarding bladder cancer.

Keywords: Awareness programme, Bladder cancer, Knowledge, Workers.

INTRODUCTION

Bladder cancer is the ninth most common cancer worldwide and the sixth most common cancer among men worldwide with an estimated 430,000 new cases diagnosed in 2012. Urothelial carcinoma is the most common subtype of bladder cancer accounting for almost 90% of all bladder cancers. Textile is one of the leading industries in the world. The textile industry workers are exposed to a number of chemicals including dyes, solvents, optical brighteners, finishing agents and numerous types of natural and synthetic fibre dusts which affect their health. Various dyes and solvents used by the textile industry have been found to have mutagenic and carcinogenic properties. Workers engaged in finishing processes are frequently exposed to crease-resistance agents. These agents may release formaldehyde which is known for its toxicity. Workers are also exposed to flame retardants including organ phosphorus and organ bromine compounds. The textile industries use different kinds of dyes including the most commonly used azo dyes which are aromatic hydrocarbon derivatives of benzene, toluene, naphthalene, phenol and aniline. The solvents used by the workers in different sections result in a major carcinogenic effect by direct contact with the subjects.

Need for the study
Bladder cancer is the second most common cancer of the genitourinary tract. It accounts for 7% of new cancer case in men and 2% of new cancer cases in women. The incidence is higher in whites and there is a positive social class gradient for bladder cancer in both sexes. Occupational exposure accounts for 15-35% of cases in men and 1-6% in women. Workers in

the chemicals, textiles, dye, rubber, petroleum, leather and printing industries are at increased risk. BC is the 6th most common cancer in the world, the 7th most common cancer in men, and the 17th most common cancer in women. The increase in the incidence rate of BC and its recurrent nature has led to massive pressures on health care systems. The American Cancer Society in 2017 estimated there to be 79,030 new cases of BC and 16,870m deaths from it in the United States. The rate of BC diagnosis in men is 4 times greater than in women and the 5-year survival rate varies from 40-80%. Nevertheless, during the last two decades, BC rates have been steady in men while there has been a 0.2% annual increase in women.

Research statement:
A study to assess the effectiveness of awareness programme on knowledge regarding bladder cancer among workers in selected textile industries at Bengaluru.

Objectives

1. Assess the knowledge level of workers regarding bladder cancer.
2. Determine the effectiveness of awareness programme regarding bladder cancer among workers.
3. Find the association between pre test knowledge scores and the selected demographic variables.

Hypothesis
To achieve the stated objectives, the following hypothesis was formulated at 0.05 level of significance.

H_1: The mean post-test knowledge scores will be significantly higher than their mean pre-test knowledge scores.

H_2: There will be significant association between the pre-test knowledge scores and the selected demographic variables.

REVIEW OF LITERATURE

A case-referent study examined occupations and industries at high risk for bladder cancer in a textile-producing area. No overall excess risk was found for working in the textile industry (OR 1.13, 95% CI 0.79-1.63) or for specific sectors (e.g., cotton, wool, silk). However, elevated risks were observed for spinners and winders with more than 20 years of employment (OR 3.28, 95% CI 1.08-9.97) and for machine setters employed between 1960 and 1974 (OR 4.26, 95% CI 1.09-16.7). The study concluded that elevated risks were associated with the highest exposures among workers.[1]

A case-control study identified high-risk occupations related to bladder cancer. Significantly increased risks were found for truck and bus drivers (OR = 11.3), skilled agricultural, forestry, and fishery workers (OR = 6.0), metal industry workers (OR = 6.0), domestic housekeepers (OR = 5.9), and construction workers (OR = 3.8). The study highlighted a strong correlation between these occupations and an increased risk of bladder cancer.[2]

A descriptive study on bladder cancer survivors revealed that out of 1,793 participants, 366 (20%) identified a possible cause for their cancer. The most commonly suspected causes were smoking (10%), occupational exposure (5%), and heredity (2%). Participants with these risk factors mentioned them slightly more frequently (smoking 11%, occupational exposure 8%, heredity 5%) compared to the total population. The study concluded that most survivors did not suspect any cause for their cancer, and even those with known risk factors often did not recognize them. This suggests a lack of awareness about bladder cancer risk factors and underscores the need for improved education on cancer prevention.[3]

A pre experimental study was done to assess the effectiveness of a self-instructional module on breast cancer and BSE of students from selected urban and rural colleges at Bengaluru. Findings of the study revealed that the overall mean percentage of the post test of urban(57.2%) and rural (59.4%) college students increase from a pre-test baseline score of zero and is found that SIM was an effective material.[4]

A retrospective study on bladder cancer survivors found that, of 1,793 participants, 366 (20%) identified a possible cause for their cancer. The most frequently reported causes were smoking (10%), occupational exposure (5%), and heredity (2%). Risk factors were mentioned slightly more often by those with them (smoking 11%, occupational exposure 8%, heredity 5%) compared to the total population. The study concluded that most survivors were unaware of the causes of their cancer, and even those with established risk factors often did not recognize them. This highlights the need for improved education on bladder cancer risk factors.[5]

METHODOLOGY

The study design consisted of an evaluative approach with one group pre-test post-test design. The population of the study consisted of 60 workers. Purposive sampling technique was utilized to select the 60 workers based on their inclusion criteria. The pre-test was conducted by administering the demographic proforma, structured knowledge questionnaire followed by administration of awareness programme on bladder cancer. The post-test was conducted by administering the same questionnaire 8 day after administration of awareness programme.

The structured knowledge questionnaire, featuring validated items, covered various aspects of bladder cancer. Statistical analysis was performed using SPSS, applying both independent and paired t-tests to compare knowledge gains within and between groups, and Chi-square tests to examine the impact of demographic variables. Ethical standards were rigorously upheld, with IRB approval obtained and informed consent from all participants, ensuring their understanding of the study's purpose and their rights. Confidentiality was strictly maintained, with data anonymized and results reported in aggregate form.

RESULTS

Table 1: Frequency and percentage distribution of samples according to the demographic variables

N=60

Sl. No	Variables		Frequency	Percentage
1.	**Age in years**			
	1.1	30-40	25	41.7
	1.2	41-50	10	16.7
	1.3	51-60	25	41.7
2.	**Gender**			
	2.1	Male	42	70
	2.2	Female	18	30
3.	**Religion**			
	3.1	Hindu	37	61.7
	3.2	Muslim	8	13.3
	3.3	Christian	15	15
4.	**Education**			
	4.1	Primary school	9	15
	4.2	Secondary school	3	5
	4.3	High school	15	25
	4.4	PUC	26	43.3
	4.5	Degree and above	7	11.7
5..	**Area of residence**			
	5.1	Rural	32	53.3
	5.2	Urban	28	46.7
6.	**Duration of work**			
	6.1	< 1 year	15	25
	6.2	1-3 years	18	30
	6.3	3-5 years	16	26.7
	6.4	> 5 years	11	18.3
7.	**Source of information**			
	7.1	Not aware	40	66.7
	7.2	Family/friends	9	15
	7.3	Mass media	9	15
	7.4	Health personnel	2	3.3

The above table describes that the the majority of participants were aged 30-40 years (41.7%), male (70%), Hindu (61.7%), and had completed their PUC (43.3%). Most were from rural areas (53.3%) and had worked for 1-3 years (30%). Additionally, 66.7% of participants were not aware of bladder cancer.

Table 2: Frequency and percentage distribution of the workers according to the level of knowledge regarding bladder cancer

N=60

Level of knowledge	Pre-test		Post-test	
	f	%	f	%
Inadequate	33	55	0	0
Moderate	25	41.67	33	55
Adequate	2	3.33	27	45

The study found that in the pre-test, 55% of participants had inadequate knowledge, 41.67% had moderate knowledge, and 3.33% had adequate knowledge. In the post-test, 55% had moderate knowledge, 45% had adequate knowledge, and none had inadequate knowledge about bladder cancer.

Table 3: Comparison of pre-test & post-test knowledge scores of workers

N=60

Parameter	Mean	Standard deviation	Mean difference	't' value
Pre-test	10.85	4.04	9.76	20.18*
Post- test	20.61	3.57		

The mean post-test knowledge score (20.61 ± 3.57) was significantly higher than the mean pre-test score (10.85 ± 4.04). The calculated t-value (t_{59} = 20.18, p < 0.05) exceeded the table value (t_{59} = 1.67), leading to the rejection of the null hypothesis and acceptance of the research hypothesis. There is a significant difference between the pre-test and post-test knowledge scores.

Table 4: Association between pre-test knowledge scores of workers and with their selected demographic variables

N=60

Sl.N		Variables	< Median	≥ Median	χ^2 value	p value	Remarks
1.		**Age in years**					
	1.1	30-40	15	10	2.16	0.33	Not significant
	1.2	41-50	6	4			
	1.3	51-60	11	14			
2.		**Gender**					
	2.1	Male	23	19	0.52	0.76	Not significant
	2.2	Female	11	9			
3.		**Religion**					
	3.1	Hindu	20	17	3.68	0.45	Not significant
	3.2	Muslim	5	3			
	3.3	Christian	6	9			
4.		**Education**					
	4.1	Primary school	4	5	0.016	0.99	Not significant
	4.2	Secondary school	1	2			
	4.3	High school	6	9			

	4.4	PUC	11	15		
	4.5	Degree and above	4	3		
5..		**Area of residence**				
	5.1	Rural	14	18	0.46	0.92	Not significant
	5.2	Urban	13	15		
6.		**Duration of work**				
	6.1	< 1 year	10	5		
	6.2	1-3 years	7	11	1.096	0.57	Not significant
	6.3	3-5 years	8	8		
	6.4	> 5 years	5	6		
7.		**Source of information**				
	7.1	Not aware	22	18		
	7.2	Family/friends	6	3	2.44	0.97	Not significant
	7.3	Mass media	5	4		
	7.4	Health personnel	1	1		

Data in Table 4 show no association between the pre-test knowledge scores of the workers and their selected demographic variables. Therefore, the research hypothesis is rejected, and the null hypothesis is accepted.

Implication of the study
Based on the study findings, measures can be taken at various level to improve the knowledge of the spouse of diabetic patients. The findings of the present study has implications for nursing education, nursing administration, nursing practice, community health practice and nursing research.

Nursing education
A key role of nursing is to provide education with updated knowledge. Nurse educators should utilize awareness programs to prepare B.Sc nursing students to educate workers in various industries, including textiles, about bladder cancer. The study shows that these programs effectively improve knowledge, suggesting they should be included in the nursing curriculum. This will enable students to better educate workers and individuals at risk of bladder cancer in both clinical and community settings.

Nursing practice
This study offers several benefits to nursing practice, including the integration of research findings into clinical practice, the introduction of a specialized awareness program, and the development of a model for assessing workers' knowledge. It also produced a useful information sheet and discharge-teaching model for oncology nurses. The insights gained highlight the importance of nursing interventions and community education. By implementing the awareness program, nurses can offer holistic care to workers and support research in oncology nursing. For quality oncology care, nurses should address the needs of adults during discharge teaching.

Nursing administration
Timing and organization of information for workers at risk of bladder cancer are crucial and should be clearly presented before discharge. A simple questionnaire can help oncology nurses assess whether workers understand the necessary information, minimizing complications and staff workload. Nursing administrators should develop guidelines for educating at-risk workers and provide materials for conducting such programs in both hospital and community settings.

Nursing research
Research is fundamental to evidence-based nursing, advancing the profession and expanding nursing knowledge. Evaluating how interventions improve worker health is crucial. Nursing research aims to enhance the body of nursing knowledge and broaden its scope.

This progress depends on nurses' initiative in conducting further studies. The materials and methodologies used will guide researchers in obtaining accurate information from target groups and uncovering the truth.

CONCLUSION

The intervention significantly improved participants' knowledge about bladder cancer, as evidenced by higher mean, median, and percentage scores in the post-test compared to the pre-test.

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