Original Article

Assessing ovarian cancer awareness and screening practices at Panjab University, Chandigarh

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ABSTRACT

Objectives: Ovarian cancer (OC) poses a significant global health threat for women due to its high mortality rate and lack of reliable screening methods. It is often diagnosed at advanced stages, leading to poor outcomes. Empowering women with knowledge about risk factors and symptoms is essential for early detection and improved prognosis.

Materials and Methods: A cross-sectional descriptive study was conducted among the female population of Panjab University, Chandigarh, including students, teaching, and non-teaching staff. Information on OC awareness was collected through a self-administered, structured, pretested, and validated questionnaire. Statistical analysis utilized proportions and the Chi-square test.

Results: The survey revealed limited understanding of OC risk factors and symptoms among respondents. Overall awareness was low in both areas. In addition, a significant correlation was found between awareness of screening patterns and respondents' occupations.

Conclusion: There was a very poor knowledge about OC, its risk factors, symptoms, and screening patterns among females in university.

Keywords: Ovarian cancer, Determinants, Awareness, University, Chandigarh

INTRODUCTION

Ovarian cancer (OC) represents a formidable global health concern affecting women worldwide. It ranks as the seventh most prevalent malignancy and the eighth leading cause of mortality among women globally.[1] In the context of Indian women, OC ranks as the third most frequent gynecological cancer, following breast cancer and cervical cancer. The incidence rate falls between 5.4 and 8/100,000 individuals, with a notable increase in risk beginning at age 35, peaking between the ages of 55 and 64 years. Alarmingly, OC exhibits the poorest prognosis among gynecological malignancies, often diagnosed at advanced Stages III or IV, according to International Federation of Gynecology and Obstetrics staging system.[2]

Breast cancer susceptibility gene1 (BRCA1) and breast cancer susceptibility gene2 (BRCA2) are the two main genes known to date to be linked to ovarian and breast cancer susceptibility.[3,4] Between 15% and 40% of people with mutations in one of these genes will develop OC in their lifetime.[5]

The key to combating this disease lies in the dissemination of knowledge regarding its risk factors and the promotion of appropriate screening measures. Empowering women with information on OC risk factors and symptom recognition can facilitate early detection. It was pertinent to note that research on OC in India remains limited, necessitating a strategic approach to enhance public awareness and understanding to safeguard against this silent but deadly disease.

Consequently, the present study was designed to compare the awareness of OC within the general population and among individuals afflicted with breast cancer. The significance of this cross-sectional interventional study lies in its potential to augment awareness levels, foster proactive screening behaviors, mitigate mortality rates, and empower women in their endeavors to prevent and detect OC.

By addressing existing knowledge gaps and implementing targeted interventions, this study holds the promise of contributing to improved health outcomes and a reduction in the burden of OC among the female population.

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MATERIALS AND METHODS

Study population and selection criteria

The study was conducted among the female population which includes students, teaching, and non-teaching staff of Panjab University, Chandigarh.

Inclusion criteria

The following criteria were included in the study:
(1) Only those participants were included who were in the age group of 20–60 years
(2) Those who were working/studying at Panjab University.

Exclusion criteria

The following criteria were excluded from the study:
(1) Age group <20 years.
(2) Participants not willing to take part in the study.

Sample size and sampling technique

Various studies had shown that OC prevalence ranges from 30% to 40%. On the basis of a 95% confidence coefficient with a 5% standard error, the sample size was calculated with a following formula $Z^2 * (P)*(1-P)/(L)^2$, where: Z = 1.96 (for 95% confidence level) P = Prevalence percentage (30%). Sample size comes out to be 323, but taking into the non-response rate of 10%, 360 participants were interviewed. Out of 360 survey forms, 26 survey forms were incomplete, due to this a total of 334 sample size was considered. Simple Random Sampling, a probability sampling technique, was used in the study to choose departments, and participants from those departments were selected using convenient sampling.

Study area and period

A descriptive cross-sectional study design was considered to fulfill the objective for a period of 5 months from February 2023 to June 2023.

Study tool

A self-administered, structured, pretested, and validated questionnaire was used to collect data about OC awareness. The questionnaire was adopted from a validated ovarian cancer awareness measure (CAM). It was based on a generic CAM developed by Cancer Research UK, University College London, and Oxford University. The questionnaire was divided into five parts: - The first part was related to information regarding demographic characteristics of respondents such as age, religion, marital status, type of family, education, occupation, and family income. The second part contained questions related to awareness of cancer. There were 14 questions having three options, that is, Yes, No, and Don't know. The third part contained questions related to OC risk factors. There were 16 risk factor questions included with a 5-score Likert scale. The fourth part contained questions related to the symptoms of OC. There were 12 questions having three options, that is, Yes, No, and Don't know. The fifth part contained questions related to screening and early detection of OC. There were five questions having three options, that is, Yes, No, and Don't know.

Scoring criteria

In terms of symptoms and screening patterns, every correct response was worth one point, while each incorrect answer was worth zero points. "Strongly Disagree" obtained a score of "0," Disagree "1," Neutral "2," Agree "3," and Strongly Agree "4" in terms of risk factors. These scores were summed together and translated to percentages of the total number of points available. Scores of at least 70% were deemed to demonstrate good knowledge, whereas scores of <50% were deemed to demonstrate weak knowledge. Those who got 50–69% have adequate knowledge.[6]

Statistical analysis

Data were entered, analyzed and results were interpreted using Microsoft Excel and Statistical Package for the Social Sciences (SPSS) software, version 29.0. The Chi-square test was utilized for data analysis on the SPSS platform.

RESULTS

Approximately 47.6% of the community were actively involved in pursuits, predominantly students, while those in teaching or educational roles comprised 38.9%, with non-teaching positions making up about 13.5% [Table 1].

Most respondents, 85.9%, were aware of OC, with 73.0% indicating knowledge of what it entails. A notable portion, 37.7%, recognized its moniker as the "Silent Killer," while 46.7% knew of its prevalence as one of India's most common cancers [Table 2].

Table 1: Sociodemographic profile of participants (*n*=334).

Demographic characteristics	Number	Percentage
Age (in years)		
20–29	166	49.7
30–39	66	19.8
40–49	68	20.4
50 and above	34	10.2
Religion		
Hindu	227	68
Sikh	97	29
Muslim	6	1.8
Others	4	1.2
Marital status		
Single	164	49.1
Married	167	50
Widowed	3	0.9
Type of family		
Nuclear	200	59.9
Joint	121	36.2
Three generation	9	2.7
Staying alone	4	1.2
Occupation		
Student	159	47.6
Teaching	130	38.9
Non-teaching	45	13.5
Education		
Graduation	113	33.8
Post-graduation	180	53.9
PhD	41	12.3

Table 2: Distribution of awareness of OC among participants (*n*=334).

Awareness of OC	Number	Percentage
Have you heard of OC?		
Yes	287	85.9
No	47	14.1
Do you know what OC is?		
Yes	244	73
No	90	27
Do you know OC is termed as a "Silent Killer?"		
Yes	126	37.7
No	208	59.3
Do you know OC is one of the most common cancers in India?		
Yes	156	46.7
No	178	53.3
Do you know OC has the highest death rate among other cancers in females?		
Yes	114	34.1
No	133	65.9

OC: Ovarian cancer

Table 3: Distribution of level of knowledge on OC risk factors, symptoms, and screening patterns among participants (*n*=334).

Variables	Overall awareness (*N*=334)		
	Good	Fair	Poor
	n (%)	*n* (%)	*n* (%)
Awareness regarding OC risk factors	23 (6.9)	167 (50.0)	144 (43.1)
Awareness regarding OC symptoms	77 (23.0)	63 (18.9)	194 (58.1)
Awareness regarding OC screening and early detection	58 (17.4)	209 (62.6)	67 (20.0)

OC: Ovarian cancer

Level of awareness

Only 6.9% of people had strong understanding of risk factors, the majority (50.0%) had fair awareness, and a sizeable portion (43.1%) had low awareness. Similar to this, just 23.0% of people had good awareness of OC symptoms, 18.9% had fair awareness, and the majority (58.1%) had poor awareness. About 17.4% had strong knowledge of OC screening and early detection, 62.6% had fair knowledge, and 20.0% had poor knowledge [Table 3].

The Chi-square analysis revealed no significant association between occupation and awareness of OC risk factors (χ^2 = 3.588, *P* = 0.465). Among students, 62.2% exhibited decent awareness, while only 6.9% demonstrated good awareness. Teachers showed mostly fair (51.5%) or good (7.7%) awareness, with just 4.8% exhibiting poor awareness. For non-teaching professionals, the majority (55.6%) had poor awareness, followed by fair (40.0%) and good (4.4%) awareness. Regarding symptoms awareness,

26.4% of students and 20.0% of teachers demonstrated good awareness, with no significant association with occupation (χ^2 = 7.613, *P* = 0.107). However, a significant association was found between occupation and awareness of OC screening patterns (χ^2 = 10.290, *P* = 0.036) [Table 4].

DISCUSSION

Determining the level of knowledge among female Panjab University students on OC risk factors and screening procedures was the aim of the current investigation. A sample of the female population in the study ranged in age from 20 to 60 years.

Similar to the present study, which found that 85.9% of respondents stated that they had heard about OC, a study by

Table 4: Association of occupation with awareness of risk factors, symptoms, and screening patterns toward ovarian cancer among participants.

Variable (occupation)	Overall awareness			Chi-Square	*P*-value
	Good *n* (%)	Fair *n* (%)	Poor *n* (%)		
Risk factors					
Student	11 (6.9)	83 (62.2)	65 (40.9)	3.588	0.465
Teaching	10 (7.7)	67 (51.5)	53 (40.8)		
Non-teaching	2 (4.4)	18 (40.0)	25 (55.6)		
Symptoms					
Student	42 (26.4)	27 (17.0)	90 (56.6)	7.613	0.107
Teaching	26 (20.0)	19 (14.6)	85 (65.4)		
Non-teaching	9 (20.0)	2 (4.4)	34 (75.6)		
Screening patterns					
Student	31 (19.5)	103 (64.8)	25 (15.7)	10.29	0.036
Teaching	18 (13.8)	75 (57.7)	37 (28.5)		
Non-teaching	9 (20.0)	31 (68.9)	5 (11.1)		

Keng *et al.* found that 85.1% of respondents had heard of the disease. Around 37.7% of respondents agreed with the fact that they know about OC being termed as a Silent killer.[7]

According to a study by Al-Naggar *et al.*,[8] abdominal and pelvic swelling received the most knowledge (33.8%), whereas unexplained changes in bowel habits received the least.

Nearly opposite results were reported in the present study, where 49.4% of participants believed that pelvic discomfort was one of the symptoms of OC and there was less participant knowledge of feeling full all the time (28.2%).[8] Vaginal bleeding after menopause can be an indication of OC, according to the current study's respondents, who agreed to the statement 50.6% of the time. However, only 26.0% of respondents in Okunowo and Adaramoye study agreed with the same assertion.[9]

Poor knowledge was reported among the participants when it came to risk factors. Being tall (7.5%) and never breastfeeding/having a close family with OC (25.3%) were the two risk factors for which people had the least knowledge. On the other hand, having ovarian cysts (62.2%) and smoking were the risk factors for which people were most aware. In contrast, in a different study, talcum powder use in the genital area (25.4%) and *in vitro* fertilization treatment history (23.1%) were associated with the lowest levels of risk factor awareness, respectively, while ovarian cyst history (65.3%) and a family history of OC were associated with the highest levels of awareness.[6]

Contrary to our study's findings (which were 37.7%), 62.9% of participants agreed that using hormonal replacement treatment could be a major risk factor for developing OC in the near future. Similar to a survey conducted in Western Iran, which found that 31.9% of respondents did not have children, our study found that 23.1% of participants did as well.[6]

In a survey conducted in Pune, 43% of respondents chose ovarian cysts, smoking (39%), and infertility (68%), whereas 60.2% of respondents chose ovarian cysts, smoking (56.6%), and infertility (45.5%) in the present study. In addition, compared to 69% in a different study, 35.9% of individuals disagreed with the claim that using talcum powder in genital areas can be risky.[10]

Contrary to findings from a study conducted in Chennai, where 23.7% of participants agreed to it, just 4.2% strongly agreed that using oral contraceptives for a prolonged period lowers the risk of OC in our present study. Only 13.7% of respondents – which was remarkably comparable to the 9.9% figure from our study – strongly believe that having a personal history of breast cancer can be a risk factor for OC.[11]

In a study conducted in Malaysia, 60.7% of the sample were found to believe that OC can be diagnosed by a Pap smear test, whereas only 39.3% of them had accurate information. This was considerably different from our study, in which only 23.7% of participants had the proper information. Nearly identical findings were obtained, with respondents believing that early OC symptoms exist in 30.2% of cases, as opposed to 39.3% in the earlier study. No single OC screening was advised, according to nearly identical responses, or 13.1% and 11.7%, respectively.[12]

CONCLUSION

A comprehensive evaluation of OC knowledge among female students, faculty, and staff at Panjab University, Chandigarh, revealed gaps and misconceptions. While participants

recognized certain risk factors such as family history, age, and certain health conditions, there was less agreement on others like the protective effect of oral contraceptive pills. In addition, misconceptions existed regarding factors such as height, talcum powder use, and smoking. Many respondents were unaware of persistent symptoms and half incorrectly believed vaginal bleeding post-menopause was normal. Addressing these gaps through targeted interventions, awareness campaigns, and collaborative efforts can empower women to prioritize their health, mitigate the burden of OC, and enhance overall well-being within the university community.

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