ORIGINAL ARTICLE

Knowledge and Attitude Toward Breast Self-Examination Among Medical Students

Sonam Maheshwari[1], Aanchal Anant Awasthi[2], Richa Sinha[3], Vidhi Vora[4], Pratik Agarwal[5], Gurpreet Kour[6]

[1,3]Department of Community Medicine, Government Doon Medical College, Dehradun, Uttarakhand
[2]Amity Institute of Applied Sciences, Amity University Uttar Pradesh
[4,5]Pear Research, Dehradun, Uttarakhand
[6]Graphic Era Hill University, Dehradun, Uttarakhand

CORRESPONDING AUTHOR
Dr Richa Sinha, Associate Professor, Department of Community Medicine, Government Doon Medical College, Dehradun, Uttarakhand 248001
Email: richasinhagdmc@gmail.com

CITATION
Maheshwari S, Awasthi AA, Sinha R, Vora V, Agarwal P, Kaur G. Knowledge and Attitude Toward Breast Self-Examination Among Medical Students. Indian J Comm Health. 2025;37(2):307-314.
https://doi.org/10.47203/IJCH.2025.v37i02.021

ARTICLE CYCLE
Received: 07/10/2024; Accepted: 30/03/2025; Published: 30/04/2025

ABSTRACT

Background: Breast Self-Examination (BSE) is a fundamental method for the early detection of breast cancer. Despite its importance, awareness and practice of BSE among medical students—a key segment of the future healthcare workforce—remain inadequate. **Aim & Objective**: The study aimed to determine the prevalence of BSE knowledge, identify misconceptions, and evaluate the students' willingness to discuss and promote BSE. **Material and Method**: A cross-sectional study was conducted among medical students. Data was collected using a questionnaire with sections on demographic information, BSE knowledge, and attitudes toward BSE. **Results**: The study found that 42.7% of students were not taught how to perform BSE, and 35% received information about BSE from their teachers. Knowledge of BSE was limited, with many students holding misconceptions about the frequency and timing of the examination. Approximately 89.1% of students indicated they would seek medical attention if they found an abnormality, though 0.9% reported doing nothing in response to abnormal findings. A significant portion (77.7%) expressed a willingness to discuss BSE with peers. **Conclusions**: The study highlights critical gaps in BSE knowledge and practice among medical students, revealing a need for enhanced educational programs. Addressing misconceptions and improving education on BSE are essential for equipping future healthcare professionals with the necessary skills to advocate for early breast cancer detection.

KEYWORDS

Breast Self-Examination; Medical Students; Awareness; Knowledge; Attitudes; Cross-Sectional Study; Dehradun

INTRODUCTION

Breast cancer, characterized by the uncontrolled proliferation of abnormal cells in the breast tissue, remains a significant public health concern worldwide, particularly among women. According to the World Health Organization (WHO), breast cancer stands as the most frequently diagnosed cancer and the leading cause of cancer-related mortality among women globally (1). In 2022 alone, it is estimated that approximately 670,000 women succumbed to breast cancer, accounting for nearly 15% of all cancer-related deaths in women (2). This staggering burden is further exacerbated by the fact that breast cancer disproportionately affects women in their prime years, with Indian women, in particular, being diagnosed at a younger age compared to their Western counterparts (3,4).

In India, breast cancer holds the dubious distinction of being the most commonly diagnosed cancer and the leading cause of cancer-related mortality among women (5). The Global Cancer Observatory estimates that in 2018, there were 162,468 new cases of breast cancer reported in India, resulting in 87,090 deaths (3). Alarmingly, the age-standardized

incidence rate of breast cancer among Indian women is 24.7, while the mortality rate stands at 13.4 (6-7). This epidemiological trend underscores the urgent need for comprehensive strategies aimed at early detection, diagnosis, and management of breast cancer in the Indian context.

One of the primary challenges in combating breast cancer is the late-stage diagnosis, with approximately 80% of patients presenting to healthcare facilities when the disease has already advanced to an incurable stage (8-9). This delay in diagnosis not only limits treatment options but also significantly diminishes the chances of survival. Consequently, there is an urgent need to enhance efforts towards early detection through robust screening programs and awareness campaigns.
Breast self-examination (BSE) represents a simple yet effective method for early detection of breast abnormalities. It involves women examining their breasts regularly to detect any lumps or changes in texture that may indicate the presence of cancerous growths. While mammography remains the gold standard for breast cancer screening, BSE serves as a valuable adjunct, particularly in resource-constrained settings where access to advanced imaging modalities may be limited (10).

Studies have shown that BSE can detect up to 95% of malignant breast tumors when performed regularly (11,12,13). Furthermore, BSE is cost-effective, non-invasive, and can be easily integrated into routine self-care practices. However, despite its potential benefits, there exists a significant gap in the knowledge, attitude, and practice of BSE among women, particularly in low- and middle-income countries like India.

Numerous studies have highlighted the low levels of awareness and practice of BSE among women in India (14, 15). For instance, a study conducted in a city in Tamil Nadu reported that only 26% of women were aware of BSE, with a mere 5% practicing it regularly (16). Similarly, a study involving Kashmiri women found that only 3.2% of participants performed regular monthly BSE (17). These findings underscore the pressing need for targeted interventions aimed at raising awareness about the importance of BSE and empowering women to take charge of their breast health.
Medical students represent a vital resource in the fight against breast cancer. As future healthcare professionals, they have the potential to influence health-seeking behaviors and promote preventive measures within their communities. Recognizing this potential, our study seeks to assess the knowledge and attitude of BSE among medical students in Uttarakhand, India.

Aim & Objective(s)

- To assess the knowledge and attitudes toward BSE among medical students at a college in Dehradun.
- To determine the prevalence of BSE knowledge, identify misconceptions, and evaluate the students' willingness to discuss and promote BSE.

MATERIAL & METHODS

Study Design and Setting: This cross-sectional study was conducted over two months, from January 2021 to February 2021, involving medical students at a medical college in Dehradun, India. A total of 220 students consented to participate. Written informed consent was obtained from all participants, ensuring that their privacy, confidentiality, and rights were upheld throughout the study.

Sampling and Sample Size: Purposive sampling was employed to select participants from the medical college. A sample size of 206 was determined using a single population proportion formula, with a 34.4% prevalence of BSE practice, a 5% margin of error, a 95% confidence level, and a 10% non-response rate. The final sample consisted of 220 participants who agreed to participate in the study.

Study Questionnaire: Data were collected using a questionnaire prepared after literature review (18-21) divided into three sections:

Part One: Demographic information, including age, place of residence, religion, and parents' education.
Part Two: Knowledge of BSE, assessed with eight questions. Responses were categorical (true/false/don't know).
Part Three: Attitudes toward BSE, evaluated through 12 questions using a 5-point Likert scale (strongly agree/agree/neutral/disagree/strongly disagree) and categorical responses (true/false/don't know).

Data Processing and Statistical Analysis: Data were entered and coded in MS Excel and subsequently exported to SPSS Version 24.0 for analysis. Descriptive statistics, including frequencies and percentages, were calculated for categorical variables. The assumptions for multiple linear regression were tested before analysis. Multiple linear regression was employed to examine the relationships between BSE knowledge and attitude and various socio-demographic variables.

Ethical Approval and Consent: Ethical approval for the study was obtained from the Institutional Review Board (IRB) at the medical college in Dehradun. All participants provided informed consent prior to participation, ensuring they were aware of the study's objectives, procedures, and their rights. Confidentiality was maintained, and personal data were handled with strict confidentiality to protect participants' privacy.

RESULTS

This study analyzed responses from 220 participants concerning their awareness, knowledge, and attitudes towards Breast Self-Examination (BSE). The majority of participants were aged between 20-22 years (65.5%, n=144), followed the Hindu religion (95.0%, n=209), and were predominantly from Uttarakhand (93.6%, n=206). Most of the participants resided in hostels or PG accommodations (72.7%, n=160), with a significant number in their 1st or 2nd academic semester (44.5%, n=98). Regarding parental education, a notable proportion of fathers (39.5%, n=87) and mothers (40.5%, n=89) were graduates, with a substantial percentage of both holding postgraduate degrees (41.8%, n=92 and 35.5%, n=78, respectively) (Table 1).

Regarding BSE practices, 50.9% of the participants reported finding no abnormalities, while 4.5% did. Among those who identified anomalies, 45.5% sought medical advice from a doctor, whereas 12.3% took no immediate action. A significant portion (41.8%) opted for alternative actions, such as consulting friends or searching for information online. Additionally, 5.9% of participants reported a family history of breast cancer, 87.7% did not, and 6.3% were unsure (Table 1).

The knowledge assessment revealed that 87.7% had heard of BSE, and 85.5% acknowledged its importance in early breast cancer detection. However, only 57.3% had been taught how to perform BSE, with instruction sources varying from teachers and doctors to parents and friends. Notably, 42.7% had not received any formal education on BSE. Understanding of BSE techniques varied, with 42.3% correctly identifying that BSE can be performed in a supine position, and 75.9% recognizing a lump as an early cancer sign. Confusion existed regarding the initiation age for BSE (43.6% indicated from puberty) and its frequency (45.9% suggested monthly). Moreover, 66.4% were uncertain about the optimal timing for BSE (Table 2).

Regarding attitudes, a majority (89.1%) stated they would seek medical attention upon noticing an abnormality during BSE. Only 4.5% would opt for lab testing, while 0.9% would do nothing. Most participants (96.4%) considered BSE a good practice, with 80.0% willing to recommend it to their friends, and 77.7% discussing its importance with peers. Interestingly, 43.2% acknowledged that BSE might be embarrassing, with 42.3% disagreeing and 13.6% remaining neutral. None strongly agreed or strongly disagreed on this point (Table 3).

A large majority expressed an interest in performing BSE, with 76.4% either strongly agreeing (26.4%) or agreeing (50.0%). Similarly, 90.9% believed that all women should practice BSE, with 52.3% strongly agreeing. When it came to caring about their breasts, 55.9% strongly agreed, and 32.7% agreed. However, opinions were more divided on contemplating breast cancer, with 45.5% either strongly agreeing or agreeing that they were not afraid to consider the possibility, while 29.5% were neutral and 25.0% disagreed. Additionally, 35.5% strongly agreed that BSE made them feel uncomfortable, while 42.3% disagreed, and 21.4% were neutral (Table 3).

To explore the relationship between BSE knowledge, attitudes, and socio-demographic variables, multiple linear regression analysis was conducted. The overall regression models were significant for both knowledge and attitude. As indicated in Table 4, age showed a significant positive association with both knowledge and attitude towards BSE. Furthermore, participants residing in hostels exhibited significantly lower knowledge and attitude scores compared to those living at home (Table 4).

Table 1 – Distribution of respondents according to Socio Demographic Characteristics

Characteristics	Responses	Frequency (%)
Age	17-19	51(23.2)
	20-22	144(65.5)
	≥23	25(11.4)
Religion	Hindu	209(95.0)
	Non - Hindu	11(5.0)
Native Place	Uttarakhand	206(93.6)

	Non- Uttarakhand	14(6.4)
Residence	Hostel/ PG	160(72.7)
	With parents	60(27.3)
Semester	1-2	98(44.5)
	3-4	25(11.4)
	5-6	63(28.6)
	≥7	34(15.5)
Father's Education	School	41(18.6)
	Graduate	87(39.5)
	Post- Graduate	92(41.8)
Mother's Education	School	53(24.1)
	Graduate	89(40.5)
	Post- Graduate	78(35.5)
If you have been practicing BSE, have you ever discovered any abnormality in your breast?	Yes	10(4.5)
	No	112(50.9)
	Not done BSE before	98(44.5)
If yes, what did you do?	Saw doctor	100(45.5)
	Did some lab tests	1(0.5)
	Did nothing	27(12.3)
	Others*	92(41.8)
Is there any history of breast cancer in your family?	Yes	13(5.9)
	No	193(87.7)
	Don't know	14(6.3)

**discuss with friends/ cousins, search on internet*

Table 2- Knowledge on BSE among the respondents

Knowledge	Responses	Frequency (%)
Have you heard of 'Breast Self Examination'?	Yes	193(87.7)
	No	27(12.3)
Do you know that BSE is a useful tool for early detection of breast cancer?	Yes	188(85.5)
	No	32(14.5)
Have you been taught how to do BSE?	Yes	126(57.3)
	No	94(42.7)
If yes, who taught you?	Parents	6(2.7)
	Teacher	78(35.5)
	Doctor	35(15.9)
	Friend	13(5.9)
	Others	88(40.0)
BSE can be done in a supine position	Yes	93(42.3)
	No	35(15.9)
	Don't know	92(41.8)
Lump is the early sign of cancer	Yes	167(75.9)
	No	22(10.0)
	Don't know	31(14.1)
At what age should BSE be started?	From Puberty	96(43.6)
	From 20 years	55(25.0)
	After menopause	1(0.5)
	No idea	68(30.9)
How often should BSE be done?	Daily	5(2.3)
	Weekly	40(18.2)
	Monthly	101(45.9)
	Yearly	9(4.1)
	No idea	65(29.5)
What is the best time to do BSE?	During menstrual	42(19.1)
	A week after period	32(14.5)
	No idea	146(66.4)

Table 3- Attitude of the respondents towards BSE

Attitude	Responses	Frequency (%)
If you discover any abnormality during BSE, what will you do?	Get some lab tests done	10(4.5)
	See a doctor	196(89.1)
	Do nothing	2(0.9)
	Others	12(5.5)
Do you think BSE is a good practice?	Yes	212(96.4)
	No	8(3.6)
Advice friends to do BSE.	Yes	176(80.0)
	No	44(20.0)
Discuss the importance of BSE with your friends.	Yes	171(77.7)
	No	49(22.3)
BSE is/will be embarrassing to me	Strongly agree	95(43.2)
	Agree	2(0.9)
	Neutral	30(13.6)
	Disagree	93(42.3)
	Strongly disagree	0(0.0)
BSE is a waste of time	Strongly agree	115(52.3)
	Agree	0(0.0)
	Neutral	10(4.5)
	Disagree	95(43.2)
	Strongly disagree	0(0.0)
Interested in doing BSE	Strongly agree	58(26.4)
	Agree	110(50.0)
	Neutral	51(23.2)
	Disagree	1(0.5)
	Strongly disagree	0(0.0)
All women should do BSE	Strongly agree	115(52.3)
	Agree	85(38.6)
	Neutral	18(8.2)
	Disagree	2(0.9)
	Strongly disagree	0(0.0)
I really care about my breasts	Strongly agree	123(55.9)
	Agree	72(32.7)
	Neutral	20(9.1)
	Disagree	5(2.3)
	Strongly disagree	0(0.0)
I am not afraid to think about breast cancer	Strongly agree	51(23.2)
	Agree	49(22.3)
	Neutral	65(29.5)
	Disagree	55(25.0)
	Strongly disagree	0(0.0)
Performing BSE makes me feel unpleasant	Strongly agree	78(35.5)
	Agree	2(0.9)
	Neutral	47(21.4)
	Disagree	93(42.3)
	Strongly disagree	0(0.0)
If there is a lump, I prefer to get treatment from a traditional healer	Strongly agree	80(36.4)
	Agree	24(10.9)
	Neutral	38(17.3)
	Disagree	78(35.5)
	Strongly disagree	0(0.0)
Always search for information regarding BSE from the internet, magazines and newspapers	Strongly agree	42(19.1)
	Agree	71(32.3)
	Neutral	92(41.8)
	Disagree	15(6.8)
	Strongly disagree	0(0.0)

Table -4 Multiple Linear Regression Analysis for BSE knowledge and attitude

BSE Knowledge					**BSE Attitude**			
Variables	B	SE	β	T	B	SE	β	T
Age	0.161	0.082	0.157	1.957*	0.073	0.029	0.125	2.569*
Religion	0.436	0.428	0.068	1.019	0.021	0.034	0.04	0.747
Native Place	0.188	0.531	0.022	0.354	0.051	0.045	0.082	1.492
Semester	0.091	0.06	0.12	1.509	0.112	0.072	0.212	4.247
Residence	-1.228	0.242	-0.329	-5.072*	-1.131	0.034	-0.208	4.212*
Father's Education	0.26	0.206	0.094	1.264	0.152	0.031	0.097	4.247*
Mother's Education	0.066	0.193	0.025	0.339	0.078	0.124	0.147	1.953

*For BSE knowledge R = 0.395; R2 =0.156; F=5.586; * P < 0.05; SE, Standard error; For BSE Attitude R = 0. 264; R2 =0.074; F=10.12; * P < 0.05; SE, Standard error*

DISCUSSION

Our study highlights critical gaps in the knowledge and practice of Breast Self-Examination (BSE) among medical students in Uttarakhand, India. Despite being part of the future healthcare workforce, a significant proportion of students remain uninformed about this essential, life-saving practice. This aligns with findings from other lower-middle-income countries, where awareness of BSE remains similarly low among medical students and the general population.

Notably, 14.5% of children were unaware of BSE as a useful tool, and nearly one in ten students had never heard of it. Only about half of the students (57.3%) reported being taught about BSE. A similar study in Dehradun found that approximately 72.72% of medical students were aware of BSE, compared to 51% of non-medical students (22). This trend of low awareness is also evident in countries such as Indonesia (23), Pakistan (24), and Ethiopia (25).

The study reveals a significant knowledge gap among medical students, who are expected to be leaders in healthcare. It is crucial for every healthcare worker to be knowledgeable about basic screening techniques for life-threatening diseases like breast cancer, where early detection can significantly impact patient outcomes (26). Alarmingly, 42.7% of medical students reported not being taught how to perform BSE. Only 35% received information about BSE from their teachers, and just 2.7% learned about it from their parents.

Community outreach programs that emphasize the importance of BSE could address this gap and promote knowledge that future generations can pass on. In the United States, clinicians play a crucial role in educating patients about BSE, with recent medical graduates making substantial contributions (27). However, only 15.9% of our participants received such instruction from their doctors.

Common misconceptions among students included the frequency and optimal timing for BSE. About one in four participants knew what age to start doing BSE, and 66.4% were unaware of the best time to conduct BSE. This highlights the need for comprehensive education for all medical students, as they are key in disseminating health information to the public. Encouragingly, 89.1% of respondents indicated they would seek medical attention if they discovered an abnormality during BSE, reflecting a proactive approach to health concerns. However, the 0.9% who reported doing nothing in response to abnormal findings underscores the need for targeted interventions to promote timely healthcare-seeking behavior, especially among healthcare workers who may influence public perceptions.

A significant proportion (77.7%) of students expressed a willingness to discuss BSE with their peers, emphasizing the role of social influence and peer communication in promoting BSE practices. Research by Li et al. highlights the importance of social support in early breast cancer detection (28). The study also reveals varying attitudes toward BSE, influenced by potential embarrassment and cultural taboos. The lack of strong agreement or disagreement suggests a nuanced understanding of these psychosocial barriers. Addressing these issues requires educational initiatives to normalize discussions about breast health, debunk myths, and provide practical advice on performing BSE discreetly.

The positive correlation between age and BSE knowledge suggests that older students generally have greater knowledge, possibly due to increased exposure to educational materials. Additionally, correlations with residence and fathers' education indicate that these factors shape attitudes toward BSE. Community outreach should consider these influences to enhance education and awareness.

While this study provides valuable insights into medical students' knowledge and attitudes toward BSE in District Uttarakhand, India, there are

limitations to consider. The study's reliance on a specific sample from a single area may limit the generalizability of the findings. Self-reported data may also introduce social desirability bias, where responses reflect perceived social acceptability rather than genuine opinions or actions. Additionally, the cross-sectional design offers a snapshot of attitudes at a single point in time, without assessing changes over time. Future research should address these limitations to gain a more comprehensive understanding of attitudes toward BSE across various populations.

Conclusion

In conclusion, the study's findings emphasize the need for ongoing education and awareness initiatives to enhance knowledge and foster positive attitudes toward Breast Self-Examination (BSE) among medical students. Despite a significant proportion of students being uninformed about BSE and common misconceptions about its practice, there is a clear opportunity to address these gaps through targeted educational programs. Medical students, as future healthcare professionals, must be well-informed and proactive in advocating for early detection methods. Addressing the hurdles related to knowledge gaps and misconceptions, and creating an environment that encourages open communication about breast health, is crucial. The study highlights that while a majority of students are willing to discuss BSE with peers and seek medical attention if abnormalities are found, a notable percentage remains uninformed or holds incorrect beliefs about the procedure. To improve breast cancer outcomes in the community, it is essential to implement and evaluate targeted interventions designed to increase BSE awareness and practice among medical students. Future research should focus on the effectiveness of these interventions and explore strategies to empower individuals to prioritize their breast health more effectively.

Recommendation

Incorporate comprehensive training on BSE as part of the undergraduate medical curriculum to ensure all students are taught the correct techniques, timing, and importance of regular self-examinations

Conduct regular workshops and hands-on training sessions on BSE techniques, facilitated by clinical experts, to improve practical skills and confidence in performing and teaching BSE.

Encourage medical students to participate in community outreach programs that focus on educating women in local communities about BSE and breast cancer prevention.

Limitation of the Study

"As a cross-sectional study, it offers only a snapshot of knowledge and attitudes at a single point in time, making it unable to establish causal relationships or track changes in BSE knowledge and practices over time. Additionally, the study was limited as only medical students from a single institution participated, which may affect the generalizability of the findings."

Relevance of the Study

This study highlights existing gaps in students' understanding of BSE and their willingness to promote it. By addressing these gaps, this research not only strengthens the preparedness of medical students but also has broader implications for improving public health initiatives. Enhanced training on BSE and early detection strategies can lead to earlier diagnoses, reduce mortality, and alleviate the burden on healthcare systems. Therefore, the study is highly relevant for shaping future health policies, medical education, and community outreach programs aimed at breast cancer prevention and early detection.

Authors Contribution

All authors have contributed equally.

Financial Support and Sponsorship

Nil

Conflict of Interest

There are no conflicts of interest.

Acknowledgement

We sincerely appreciate the students who have participated in the study and contributed to raising awareness about the significance of early detection in breast cancer prevention.

Declaration of Generative AI and AI Assisted Technologies in the Writing Process

The authors haven’t used any generative AI/AI assisted technologies in the writing process.

References

1. Breast cancer A guide for journalists on breast cancer and its treatment. https://www.medbox.org/index.php/dl/618272c6097725367a5db6d3#:~:text=Treatment%20options%20for%20breast%20cancer,advanced%20forms%20of%20the%20disease. (Accessed on 25-04-2025)

2. World Health Organization, 2022 cancer data. https://www.who.int/news-room/fact-sheets/detail/cancer (Accessed on 25-04-2025)
3. The Global Cancer Observatory 2018 data, India. https://gco.iarc.who.int/media/globocan/factsheets/populations/356-india-fact-sheet.pdf (Accessed on 25-04-2025)
4. Chopra B, Kaur V, Singh K, Verma M, Singh S, Singh A. Age shift: breast cancer is occurring in younger age groups—is it true? Clin Cancer Investig J 2014;3(6): 526–29.
5. Thangjam S, Laishram RS, Debnath K. Breast carcinoma in young females below the age of 40 years: a histopathological perspective. South Asian J Cancer 2014;3(2): 97–100.
6. Sandhu D, Sandhu S, Karwasra R, Marwah S. Profile of breast cancer patients at a tertiary care hospital in north India. Indian J Cancer 2010; 47(1): 16–22.
7. Kakarala M, Rozek L, Cote M, Liyanage S, Brenner DE. Breast cancer histology and receptor status characterization in Asian Indian and Pakistani women in the U.S.: a SEER analysis. BMC Cancer 2010;10:191.
8. Rosenberg R, Levy-Schwartz R. Breast cancer in women younger than 40 years. Int J Fertil Womens Med. 2003;48(5): 200–5.
9. Raina V, Bhutani M, Bedi R, Sharma A, Deo SV, Shukla NK, et al. Clinical features and prognostic factors of early breast cancer at a major cancer center in North India. Indian J Cancer. 2005;42(1):40–5.
10. Kayode FO, Akande TMO. Knowledge, attitude and practice of breast self-examination among female secondary school teachers in Ilorin, Nigeria. European Journal of Scientific Research. 2005;10(3):42-47.
11. Wishart GC, Warwick J, Pitsinis V, Duffy S, Britton PD. Measuring performance in clinical breast examination. Br J Surg. 2010;97(8):1246-52.
12. Allen TL, Barksdale BJVGDJ, McCarthy R. The Breast Self-Examination Controversy: What Providers and Patients should Know. J Nurse Pract. 2010;6(6):444–51.
13. Wilke LG, Broadwater G, Rabiner S, Owens E, Yoon S, Ghate S, et al. Breast self-examination: defining a cohort still in need. Am J Surg. 2009; 198(4):575–9.
14. National Breast Cancer Foundation PLC. Available at: http://www.nationalbreastcancer.org/breast-self-exam (Accessed on 25-04-2025).
15. Nade Fon Peter, Assob Jules Cement Nguedia, Kwenti Tebit Emmanuel NAL. Knowledge, attitude and practice of breast self-examination among female undergraduate students in the University of Buea. BMC Research Notes. 2015;8(1):1-6.
16. Kumarasamy H, Veerakumar AM, Subhathra S, Suga Y, Murugaraj R. Determinants of awareness and practice of breast self-examination among rural women in Trichy, Tamil Nadu. J Mid-life Health 2017; 8(2):84-8.
17. Sideeq K, et al. Knowledge, attitude, and practice of breast self-examination among adolescent girls in a rural community in India. Int J Community Med Public Health. 2017;4(9):3288-3292.
18. Birhane K, Alemayehu M, Anawte B, et al. Practices of Breast Self-Examination and Associated Factors among Female Debre Berhan University Students. Int J Breast Cancer. 2017;2017:8026297.
19. Al-Sharbatti S. S., Shaikh R. B., Mathew E., and Al-Biate M. A. S., Breast self examination practice and breast cancer risk perception among female university students in Ajman, Asian Pacific Journal of Cancer Prevention. 2013;14(8):4919–4923
20. Akhtari-Zavare M, Juni MH, Ismail IZ, Said SM, Latiff LA. Barriers to breast self examination practice among Malaysian female students: a cross sectional study. Springerplus. 2015;4:692.
21. Ahmed B. A., Awareness and practice of breast cancer and breast-self examination among university students in Yemen, Asian Pacific Journal of Cancer Prevention. 2010;11(1):101–105.
22. Bisma A, Kumar N, Mishra SK, Chaudhary MA, Thakur S, Kour J, Kumari P. To Assess the Knowledge of Breast Self Examination and Awareness about Breast Cancer among the Female Students of Baba Farid Institute of Technology, Dehradun. Journal of Medical Science and Clinical Research, 2022;10(02):31-35.
23. Andri, Rezano., Marhendra, Satria, Utama., Hesti, Lina, Wiraswati., Savira, Ekawardhani., Melia, Juwita, Adha., Nurul, Mufliha, Patahuddin., Veronica, Oladitha, Siagian., Siti, Silvia, Nur, Shofa, Shamantri., Erlangga, Ing, Geni, Bisma, Pratama., Liana, Awalia, Lutfunnisa., Asep, Wiryasa., Hansen, Wangsa, Herman. (2022). Knowledge Level towards Breast Cancer and Breast Self-Examination among Medical Students of Indonesia. Global Medical & Health Communication. GMHC. 2022;10(1):35–42
24. Tahira Y, Nazar K, Parveen T. Awareness And Attitude Of Adolescent Girls About Self-Examination Of The Breast. Biological and Clinical Sciences Research Journal, 2023;4(1):1-5
25. Getu MA, Abebe M, Tlaye KG, Goshu AT. Breast Self-Examination Knowledge and its Determinants among Female Students at Addis Ababa University, Ethiopia: An Institution-Based Cross-Sectional Study. Biomed Res Int. 2022;2022:2870419.
26. Nekhlyudov, L., Barton, M.B., Elmore, J.G., et al. Breast self-examination: who teaches it, who is taught, and how often? Cancer Causes Control. 2002;13(4):343–351.
27. Baisen, Li., Li, Xia., Jing, Yang., Min, Wen., Miao, Yu., Exian, Mou., Shiwei, Liu., Hui, Li., Hao, Wang. Enhancing social support and knowledge perception decreases patient delay in breast cancer. Gland Surgery, 2021;10(7):2220-2231
28. F. O. Kayode and T. M. O. G. Akande. Knowledge, attitude and practice of breast self-examination among female secondary school teachers in Ilorin, Nigeria. European Journal of Scientific Research. 2005;10(3):42-47.