| Authors (Year) | Participants | Design | Measures | Outcomes |
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| *Eastern Asia* | | | | |
| Zhang et al. (2021) [1] | China: female college students of medical & non-medical courses (n = 2233)<br><br>Avg age: 20.23 ±1.602 years | Descriptive cross-sectional | 3 Non-standardised scales. For all items α = 0.732, KMO (Kaiser–Meyer–Olkin) was 0.785<br><br>1. BC knowledge<br><br>2. BC attitudes<br><br>3. BSE behaviour | BC Awareness/Understanding: BC knowledge influenced by demographic factors and health education.<br><br>BSE: Health education had the greatest effect on BSE behaviour, followed by demographic factors, attitudes, and knowledge, and the total effective values were 0.661, 0.27, 0.194, and 0.161, respectively.<br><br>14.7% reported having performed BSE, of which 7.4% majored in medicine, and 7.3% majored in non-medicine. |
| Xie et al. (2019) [2] | China: female college students of medical and non-medical courses (n = 225) | Descriptive cross-sectional | 2 standardised scales<br><br>1. BC knowledge measure based upon 2017 American College of Obstetricians and Gynecologists updated Clinical Management Guidelines, α = 0.865<br><br>2. The Chinese version of the general self-efficacy scale, internal consistency coefficient 0.87, α = 0.835 | BC Awareness/Understanding: 48.6% of college students had low awareness of breast cancer and screening.<br><br>Breast cancer knowledge level and sleep satisfaction were two predictive factors of general self-efficacy for breast cancer screening. |
| Yang et al. (2022) [3] | China: female nursing students (n = 205) | Descriptive cross-sectional | 2 standardised scales<br><br>1. Chinese version of the Breast Cancer Awareness Measure (C-BCAM), α = 0.90, measuring BC knowledge, attitudes and BSE behaviour<br><br>2. Chinese version of the Health Information | BC Awareness/Understanding: Health information literacy and breast cancer awareness among female nursing students in Changchun were significantly positively correlated<br><br>The nursing students had an average level of health information literacy and a good level of breast cancer awareness |

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| | | | Literacy Self-rating Scale (HILSS)* | |
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| Zhang et al. (2022) [4] | China: female college students of medical & non-medical courses (n = 1346) | Descriptive cross-sectional | 3 Non-standardised scales. For all items content validity 0.780, the total α = 0.702<br><br>1. BC knowledge α = 0.533<br>2. BC attitudes α = 0.697<br>3. BSE behaviour α = 0.563 | BC Awareness/Understanding: Main factor influencing BC knowledge in female college students in western Yunnan was their grades.<br><br>BSE: 56.3%-74.5% of respondents lacked a positive attitude for BSE methods and times, and mammography. |
| Terui-Kohbata et al. (2020) [5] | Japan: female college students of medical & non-medical courses (n = 353)<br><br>Age (range, avg): 20-30, mean 22.2, median 22 years | Descriptive cross-sectional | 2 Non-standardised scales*<br><br>1. Knowledge of hereditary risk only<br><br>2. BSE Awareness of / attitude toward self/visual palpation | BC knowledge, awareness, and interest were relatively high.<br><br>BC attitudes Family history of BC reduced likelihood to undergo genetic screening.<br><br>Positive attitude toward risk-reducing surgery higher for medical majors.<br><br>Approximately half of respondents answered that they would hesitate to get married or to have children if they were a *BRCA1/2* mutation carrier. |
| *Africa* | | | | |
| Carlson-Babila et al. (2017) [6] | Cameroon: female students of Higher Teachers Training College (n = 345)<br><br>Age (range, avg): 17 - 34 years (mean = 22.5 ± 3.2). 49.9% 21-25 years | Descriptive cross-sectional | 3 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BC attitudes<br><br>3. BSE knowledge | BC Awareness/Understanding: 11.9% reported to have never heard about BC. Television/radio (n 64.5% and health personnel 62.5% were the main sources of knowledge for the 88.1% participants who had heard about BC. 21.4% of participants had sufficient knowledge on BC.<br><br>BC attitudes: if diagnosed with BC, 47.7% said they will go to a prayer house, 19.1% will use traditional medicine and only 34.5% will agree to perform mastectomy if necessary<br><br>BSE: 47% of those who knew about BC had heard about BSE. 32.9% did not know how often BSE should be performed. 7% participants knew that the appropriate time to perform a BSE was few days after menstruation. 93% recognised the importance of BSE for their health |

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| Mahmoud et al. (2018) [7] | Egypt: female nursing students (n = 104) | Quasi-experimental Intervention participants divided into a study group (52) and control group (52) | 2 Non-standardised scales | BC Awareness/Understanding: Significant positive change in mean score of total BC knowledge after educational intervention in the study group than the control group and within the study group before and after educational intervention |
| | Study group Age (avg): 19.35±1.42 years | | 1. BC & BSE knowledge α = 0.72 | |
| | | Educational intervention of three 20-30 minutes sessions including lecture, group discussion, brainstorming and demonstration. | 2. BSE observed practice checklist α = 0.78 | BSE: Mean score of BSE practice significantly increased in the study group than control group after educational intervention and within the study group before and after educational intervention |
| | Control group Age (avg): 19.77±1.47 years | | 1 Standardised scale | |
| | | | 3. Champion Health Belief Model Scale for BC  α = 0.81 | |
| | | BC knowledge, health beliefs and BSE practice assessed at baseline and 2 months post-intervention | | |
| Gebresillassie et al. (2018) [8] | Ehiopia: female medical and health science students (n = 300) | Descriptive cross-sectional | 3 Non-standardised scales* | BC Awareness/Understanding: More than two third of the participants acknowledged old age, family history, and smoking as possible risk factors for breast cancer. Majority of the participants were unaware for complex risk factors such as first child after the age of 30 years (51%), early onset of menses (55.3%), and menopause after the age of 55 years (47.7%). |
| | Age (avg): 21.4 SD 2.13 years. 97% 18-25, 3% > 25 | | 1. BC knowledge | |
| | | | 2. BC attitudes | Although the overall level of knowledge on breast cancer was low, high level of knowledge was observed in questions related to general knowledge about BC |
| | | | 3. BSE knowledge | |
| | | | | BC Attitudes: Majority of study participants had correct beliefs about breast cancer management and its outcomes. however, they had negative perception of breast cancer treatment by considering it to be a long-term and painful process |
| | | | | BSE: 56.0% of participants were aware about once a month recommendations for practicing BSE and 36% for once a year clinical breast examination (CBE) |

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| Elzahaf et al. (2018) [9] | Libya: female College of Medical Technology students (n = 200)<br><br>Age (range, avg): 18 to 27, mean 20.8 ± 1.88 years. Nearly 50% of them were aged from 21 to 23, 50% of them were in the first year of their education level | Descriptive cross-sectional | 3 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BC attitudes<br><br>3. BSE knowledge | BC Awareness/Understanding: 87.5% reported low knowledge of breast cancer.<br><br>BC Attitudes: 90% reported good attitude about BC<br><br>BSE: 82.5% had knowledge of BSE as diagnostic for BC. 71.5% had used incorrect practices of breast examination (lack knowledge regarding frequency and appropriate time to practice BSE) |
| Onwusah et al. (2017) [10] | Nigeria: female (62.3%) male (37.7%) students of 2 universities, 9 faculties, medical and non-medical (n = 774)<br><br>Age (range): 18-36 years | Descriptive cross-sectional<br><br>Group comparison (sex, course of study) | 2 Non-standardised scales. For all items total α = 0.72<br><br>1. BC knowledge<br><br>2. BSE knowledge | BC Awareness/Understanding: All respondents had heard of BC with radio (52.9%) and television (47.3%) respectively as the major sources of information. Level of knowledge and awareness of risk factors for respondents from Delta State University and University of Port Harcourt (51.2%, 49.8%) respectively. For both universities, respondents' knowledge and awareness of symptoms (75.5%, 72.7% respectively); prevention and treatment (89.2%, 87.8%) respectively<br><br>Faculties of Pharmacy for both universities were observed to be more knowledgeable and aware of breast cancer. This is followed by students from Basic Health Sciences/Dentistry<br><br>Female students were not significantly more knowledgeable and aware than male students about breast cancer<br><br>BSE: For both universities, respondents had excellent knowledge and awareness of BC detection methods (including BSE) (94.0%, 93.5%) |
| | | | *Western Asia* | |
| Salim et al. (2020) [11] | Iraq: 71% female and 29% male university students of medical and non-medical courses (n = 200)<br><br>Age (range, avg): 21.7± 3.22 years | Descriptive cross-sectional<br><br>Group comparison (sex) | 2 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BSE knowledge | BC Awareness/Understanding: The level of knowledge and awareness among all the students was 71.7% and only 29% revealed acceptable knowledge and awareness about BC<br><br>Knowledge and awareness of risk factors, female 74%, male 26%, some items showed significant difference between male and female<br><br>BSE: Knowledge about tools of BC detection showed no significant differences between male and female. 14% of male and 25% of female had correct knowledge about tool of BC early detection, while only 4.5% |

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| | | | | out of male and 10.5% of female knew the appropriate time to conduct BSE in perimenopause and 5% of male and 13% of female had idea about BSE time after menopause. The total knowledge about BC prevalence and detection of male was 33%, female 67% |
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| Khraiwesh et al. (2020) [12] | Palestine: female students of six universities (n = 1200)<br><br>Age (range, avg): 18 to 37 median 20, mean 21±3.3 years | Descriptive cross-sectional | 3 Non-standardised scales. For all items α = 0.85<br><br>1. BC knowledge<br><br>2. BC attitudes<br><br>3. BSE behaviour | BC Awareness/Understanding: 86% had any awareness of the term BC. Of BC aware participants 27% considered cause of BC to be a medical condition. Other perceived risks for BC were lifestyle factors<br><br>BC Attitudes: 60% thought BC is not a punishment from God. 98% of those participants also agreed that breast cancer should receive support from the community.<br><br>BSE: Less than half of BC aware participants had ever heard of BSE (33%) or clinical breast examination (29%). Of BSE aware participants, 45% had ever performed BSE themselves. A very high percentage of the participants did not have any knowledge concerning the recommended frequency of BSE (96.5%) or when to perform it in relation to the menstrual cycle (97%) |
| Elsayed et al. (2019) [13] | Saudi Arabia: female university students of non-medical courses (n = 293)<br><br>Age (range): 18+ (62.1% aged 20 to 22 years) | Quasi-experimental design – one group pre-, post-test<br><br>Intervention Lecture on BC and pamphlet<br><br>Pre- and post-test dates not reported | 2 Non-standardised scales. For all items α = 0.92<br><br>1. BC knowledge<br><br>2. BSE knowledge and behaviour | BC Awareness/Understanding: Most of research group had inadequate information on the symptoms of breast cancer, risk factors, preventive measures and early detection methods.<br><br>BSE: The health education activity had a significant effect on participants' awareness of BC and increased BSE experience |
| Ismail et al. (2021) [14] | Syria: 59.5% male, 40.5% female university students of medical courses (n = 301)<br><br>Age not reported | Descriptive cross-sectional | 1 standardised scale.<br><br>1. Breast Cancer Awareness Measure (BCAM) | BC Awareness/Understanding: Total mean knowledge regarding BC was above-average (68.4%). Above average level of knowledge for common symptoms (71.6%) and risk factors (59.5%).<br><br>No significant difference in the overall knowledge between males and females. |
| Saritas et al. (2020) [15] | Turkey: male nursing students (n = 307) | Descriptive cross-sectional | 2 Non-standardised scales. For all items α = 0.75 | BC Awareness/Understanding: 83.4% aware of BC in males, 72% had previously received information about BC. 23.8% believe they have |

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| | | | 1. BC knowledge | sufficient knowledge about male BC, 49.5% believe male BC is a disease that can cause death |
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| | Age (avg): 21.24 ± 2.11 years | | 2. BSE knowledge and behaviour | BSE: 67.8% have already received information about BSE. 83.7% of the students don't practice BSE, 3.3% of those who practice BSE perform once a month and 26.4% of those who don't practice BSE think that BSE is not necessary for the males. 34.5% do not believe BSE to be a time-consuming process. 33.2% believe BSE is a tedious process. 35.8% teach relatives after learning BSE. 30.6% practice regularly after learning BSE. |
| | | | *Western Asia Ex-Soviet* | |
| Balakrishnan et al. (2022) [16] | Georgia: female (n=167), male (n=56) medical university students (n = 225)<br><br>Age not reported<br><br>6 academic years in the course, 3 years pre-clinical and 3 years clinical (Pre-clinical, n=118 & clinical, n=107) | Descriptive cross-sectional<br><br>Group comparison (education level) | 2 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BSE knowledge (one item) | BC Awareness/Understanding: No significant difference in knowledge between clinical and non-clinical students in identifying correct symptoms and differentiating among wrong symptoms. While differentiating correct and wrong risk factors, clinical students could identify more correct risk factors but both clinical and nonclinical students got confused equally to exclude the wrong ones (p=0.939)<br><br>Lack of awareness among the students regarding the gene associated with the worst prognosis<br><br>BSE: 44 participants have chosen self-examination to provide a diagnosis of breast cancer with 99% accuracy |
| | | | *Eastern Europe Ex-Soviet* | |
| Kryvoviaz et al. (2019) [17] | Ukraine: female university students of the pharmaceutical department (n = 240)<br><br>Age (range): 36.7% 17–18 years, 43.3% 19–20 years, 20.0% > 21 years | Descriptive cross-sectional | 3 Non-standardised scales*<br>developed from National Cancer Institute (USA) guidelines<br><br>1. BC knowledge<br><br>2. BSE knowledge and behaviour<br><br>3. BC Screening Attendance (one item) | BC Awareness/Understanding: 95% aware of the risk for developing BC, higher level of awareness of the fixed risk factors in comparison with the modifiable risk factors<br><br>BSE: 83.3% familiar with BSE method, 29.2% perform BSE regularly, 39.1% perform it sometimes, 31.7% do not do it or find it difficult to answer this question<br><br>BC Screening Attendance: 46.3% visit gynaecologist regularly |

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| Cichomska et al. (2020) [18] | Poland: 95.78% female, 4.22% male nursing students (n = 166)<br><br>Age (range, avg): The mean 22.82 years (SD = 2.75 years). | Descriptive cross-sectional | 2 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BSE behaviour | BC Awareness/Understanding: The respondents gave a total of 67.58% correct answers regarding the knowledge about BC prevention. On average, they obtained 14.87 points (±2.82), which indicated good level of knowledge.<br><br>BSE: 96.39% familiar with method of BSE. Of these 41.88% report using this method at least once a month. 36.25% respondents claimed using it less than once a month. 40.15% learned BSE through a brochure or journal article. 13.64% were taught by doctor, 16.67% by nurse. 12.88% learnt about it during their studies. |
| Zuzak et al. (2018) [19] | Poland: 268 female, 49 male medical and non-medical students of medical universities (n = 317)<br><br>Age (range, avg): 20.7 - 25.0, 22.8 years | Descriptive cross-sectional<br><br>Group comparison (sex, course of study) | 3 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BSE behaviour<br><br>3. BC Screening Attendance | BC Awareness/Understanding: Statistically significant differences in medical vs non-medical general BC knowledge and risk factors, greater knowledge in medical students<br><br>BSE: 76.21% of female respondents perform BSE at least once a year (males not questioned)<br><br>BC Screening Attendance: 69.01% females confirmed first attendance at gynaecologist |
| Rizalar et al. (2017) [20] | Poland and Turkey: female nursing students Poland (n = 160) Turkey (n = 190)<br><br>Age (avg): Polish: 19.9 ± 1.6 years Turkish: 21.36 ± 2.08 years | Descriptive cross-sectional<br><br>Group comparison (country / culture) | 3 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BSE attitude and behaviour<br><br>3. BC Screening attitudes | BC Awareness/Understanding: Significantly more Turkish students knew risk factors: high-fat diet, being overweight, first childbirth at an advanced age and not having given birth. Significantly more Polish students knew using oral conceptive was a risk factor<br><br>BSE: 99.5% Turkish and 98.1% Polish students considered BSE to be required. 97.9% Turkish students knew about, and 72.1% were applying BSE. 84.4% Polish students knew about, and 48.1% were applying BSE. Differences all significant<br><br>BC Screening Attitudes: No group difference found between in considering mammography to be required |
| *Northern America* | | | | |
| Justice et al. (2018) [21] | USA: 42.8% male 57.2% female non-medical university students (n = 284) | Descriptive cross-sectional<br><br>Group comparison (race) | 2 Non-standardised scales<br><br>1. BC knowledge Pearson correlation coefficients > 0.80 | BC Awareness/Understanding: Overall mean knowledge score 10.59 (SD = 2.865), based on potential range of 0–20 correct answers. BC knowledge was significantly influenced by race (Whites had a significantly higher mean knowledge score (M = 10.99, SD = 2.594) than non-whites (M = 9.59, SD = 3.182); t (281) = −3.884, P = .000) |

| | | | 2. BSE behaviour (single item summed with other behaviours for total score) Pearson correlation coefficients > 0.80 | BSE: Inverse correlation between BC knowledge and health behaviours. $r(237) = -0.172$, $P = .008$ |
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| | Age not reported | | | |

| | | | | *Southern America* |
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| Faria et al. (2021) [22] | Brazil: male non-medical and health sciences university students (n = 299)<br><br>Age (range, avg): 17-50, median 24 years | Descriptive cross-sectional<br><br>Group comparison (course of study) | 2 Non-standardised scales*<br><br>1. BC knowledge (male)<br><br>2. BSE knowledge and behaviour (male) | BC Awareness/Understanding: No significant differences in male BC general (30.4% pure science, 37.2% humanities and 41.5% health sciences), heredity and prevention knowledge. 84.9% of health sciences, 79.5% humanities and 55.4% pure sciences students knew BC can be cured. Less than a third of health sciences and humanities students understood that predisposing factors exist; significantly fewer pure sciences students knew of the existence of these factors<br><br>BSE: 68.9% said they had no knowledge of how to self-examine, and 76.6% of participants reported not knowing the signs and symptoms of male BC |
| Delgado-Díaz et al. (2020) [23] | Peru: female 72%, male 28%, medical students (n = 292)<br><br>Age (range, avg): 17 – 29, mean 20.5 years | Descriptive cross-sectional | 3 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BSE knowledge<br><br>3. BC Screening knowledge | BC Awareness/Understanding: Known risk factors: drinking alcohol 49%, age 46%, early menarche, and late menopause 45%, obesity 44%, smoking 21%, family and personal history 10% and gender 7%<br><br>BSE: Known prevention measures: frequency for self-examination 63%, the relationship of menstruation and BSE 54%<br><br>BC Screening knowledge: Known prevention measures: correct age for mammography 71%, frequency for mammography 48% |

| | | | | *Southern Asia* |
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| Sarker et al. (2022) [24] | Bangladesh: female university students (n = 400)<br><br>Age (range): 18-26 years | Pre-post intervention quasi-experimental<br><br>BSE performance demonstrated with images. Pre-intervention and 15 days post-intervention assessments for changes in BC | 3 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BSE knowledge and behaviour<br><br>3. BC Screening knowledge | BC Awareness/Understanding: Significant changes in knowledge and awareness about BC after the educational intervention, measured in the mean scores of symptoms, risk factors, treatment, prevention<br><br>BSE: Significant changes were found in BSE practices after the educational intervention.<br><br>BC Screening knowledge: Significant changes were found in BC screening knowledge after the educational intervention |

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| | | | knowledge and BSE practice | |
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| Lahiji et al. (2019) [25] | Iran: female medical and non-medical students of medical science university (n = 500)<br><br>Age (range, avg): 18 – 40 mean 21.88 ± 2.65 years | Descriptive cross-sectional | 1 Non-standardised scale<br><br>1. BC knowledge (nutrition factors) correlation coefficient 0.98, α = 0.89 | BC Awareness/Understanding:<br>Mean knowledge score 16.96 (range: -0.63-37). 50% did not know "weight gain", "vitamin D deficiency", "vitamin C deficiency" and "consuming sweet foods" as BC risk factors. 82.4% and 78% of students cited "smoking" and "alcohol consumption" as BC risk factors respectively. 84% and 83% of students knew that sufficient intake of vegetable and fruit has been associated with a reduced risk of BC, respectively. 23% of participants did not have correct knowledge about a probable association between various cooking method and BC prevention. 28% not aware of adequate fish intake in BC prevention.<br><br>70% of students believed that BC can be prevented |
| Qasim et al. (2020) [26] | Pakistan: female clinical and pre-clinical medical students (n = 266)<br><br>Age (range, avg): 18–21 mean 19.3 ± 3.8 years | Descriptive cross-sectional<br><br>Group comparison (level of study) | 1 standardised scale*<br><br>1. Breast Cancer Awareness Measure (BCAM) | BC Awareness/Understanding: The difference in the level of perception of two groups was found to be significant for symptoms and risk factors<br><br>BSE: 38.7% of the subjects responded that they check their breasts rarely, 33.1% were fairly confident while 8.6% were very confident about detecting a change in their breast, 50.0% never noticed a change in their breast, and 77.4% will contact a doctor within a week or less of finding a change in their breast. Confidence about detecting a change significantly improved after the start of clinical training<br><br>No significant differences in the frequency of BSE were found between second and third year students |
| Nimbannavar et al. (2019) [27] | India: female university students (n = 386)<br><br>Age (avg): 19.02 ± 0.84 years | Descriptive cross-sectional | 2 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BSE knowledge and behaviour | BC Awareness/Understanding: 86.11% have heard about BC. Among them, 65.10% know that BC is the most common cancer among women. More than one third of the women who were aware about the disease, believed that smoking and alcohol consumption were major risk factors followed by use of contraceptive pills, genetic factors as well as family history of disease by 26.39%, 26.39% and 24.63% respectively. 65.68% knew that mass/lump in the breast could be a symptom of disease followed by pain in the breast and change in size/shape/colour of breast by 61.58% and 38.70% respectively. 61.58% quoting regular exercise followed by 41.64% quoting diet rich in fiber as protective factors. 70% believed that early detection improves chances of survival and 63.92% believed that BC is curable. |

| | | | | BSE: 80.06% have heard about BSE, 68.03% wanted to practice BSE in future, 12.90% would prefer to consult allopathic system of medicine should they develop any BC symptoms. 5.28% of women in the present study have performed BSE |
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| Vasishta et al. (2018) [28] | India: female university students (n = 177)<br><br>Age (range): 18–25 years (87.5% 18–20 years) | Pre-post intervention quasi-experimental<br><br>Teaching program that consisted of power point presentation regarding physiology, risk factors, steps of BSE. Post intervention administration of same questionnaire. | 2 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BSE knowledge and behaviour | BC Awareness/Understanding: After the intervention, there was statistically significant increase in correct answers for anatomy and physiology of breast, transmission of breast cancer, age group affecting breast cancer, approach towards physician<br><br>no significant association was found between the demographics and knowledge of the respondents<br><br>BSE: 80.8% had never heard/ watched on BSE. 97.7% had never performed BSE. After the intervention, there was statistically significant increase in correct answers for methodology of BSE |
| *South Eastern Asia* | | | | |
| Akhtari-Zavare et al. (2018) [29] | Malaysia: female university students (n = 792)<br><br>Age (avg): 21.77 ± 1.20 | Descriptive cross-sectional scale development<br><br>*Data collected 2011* | 2 Standardised scales<br><br>1. Novel scale being developed measuring BC knowledge, Kappa for 4 subscales (risk factors, symptoms, BSE, CBE) 0.52-0.90<br><br>2. Champion's Revised Health Belief Model Scale (CHBMS; Champion, 1993) – translated, 6 subscales (susceptibility and seriousness of BC, benefit of BSE, barrier of BSE, confidence of doing BSE, health motivation) α = 0.73-0.83 | All scales demonstrated adequate psychometric quality in this population<br><br>BC Knowledge / BSE scores not reported |
| Azlan et al. (2022) [30] | Malaysia: female medical students (n = 245) | Descriptive cross-sectional | 3 Non-standardised scales* | BC Awareness/Understanding: 98.0% have high level of knowledge on risk factors |

| | | | 1. BC knowledge | and signs and symptoms of BC. Most of the students (98.4%) have heard about BC |
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| | Age (range, avg):<br>20 years old 36 14.7%<br>21 years old 56 22.9%<br>22 years old 44 18.0%<br>23 years old 61 24.9%<br>24 years old 29 11.8% | | 2. BSE knowledge<br><br>3. BSE behaviour | BSE: 93.1% have heard about BSE, 69.0% have performed BSE, 8.6% performed BSE regularly monthly, reasons for not performing BSE: lack of knowledge (35.1%), forgetfulness (33.9%) and negligence (21.6%). 17.6% participants reported of not knowing how to perform BSE |
| Ghazi et al. (2017) [31] | Malaysia: male medical (26.7%) and non-medical (73.3%) students<br>(n = 460)<br><br>Age (range, avg): 18 – 30, 20.64 ± 2.15 years | Descriptive cross-sectional<br><br>Group comparison (course of study, age) | 2 Non-standardised scales*<br><br>1. BC knowledge<br><br>2. BC attitudes | BC Awareness/Understanding: Poor knowledge about female BC 54.8%. Good beliefs about female BC 27.4%. Poor beliefs include 44.6% answered that BC is a punishment, 73.3% said it is a fate or destiny and 53.7% wrongly said that breast cancer is contagious.<br><br>Medical students showed a higher percentage of good knowledge and there was an association between course of study and level of knowledge. Association between age and beliefs. Medical students showed a higher percentage of good beliefs than non-medical students. |
| Islam et al. (2018) [32] | Malaysia: female (94.2%), male university students<br>(n = 679)<br><br>Age (range): 30 years or below (61%) | One group pretest-postest quasi-experimental<br><br>Educational intervention (leaflets, posters, banners) displayed at campus. Discussion on leaflets and Q&A, practical demonstrations of BSE dummy<br>. | 1 Non-standardised scale*<br><br>1. BC knowledge | The materials improved perceived knowledge on the process of detecting BC (96.5%). 92.8% agreed or strongly agreed that they felt more confident in recognizing the symptoms of BC themselves. There was an increase in self-reported knowledge of BC |
| Rezano et al. (2022) [33] | Indonesia: female (87%), male (13%) medical students<br>(n = 100)<br><br>Age (range, avg): 18–24 years | One group pretest-postest quasi-experimental<br><br>Intervention: A mini-lecture on risk factors and early detection | 1 standardised scale*<br><br>1. Breast Cancer Awareness Measure (BCAM) modified and translated | BC Awareness/Understanding: Most respondents believed smoking (97%), genetic inheritance (94%), and a sedentary lifestyle (93%) lead to BC. However, knowledge of important biological risk factors like alcohol consumption (6%), workaholic (6%), age of menstruation (14%), grilled food (13%), married women without children (31%), birth control pill consumption (34%), premature menopause (35%) were low prior dissemination, although they had heard of BC.<br><br>BSE: Before dissemination, only 4% knew that BSE prevents BC. 11% said BC could be detected through BSE. Most of the respondents have good knowledge that BSE should be done monthly. However, most of the respondents (92%) think that BSE may change the shape and |

| | | | | density of the breast, but after dissemination, they were aware that it is not altered (88%). |
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*Note* * = no scale validity or reliability coefficients reported, BC = Breast Cancer, BSE = Breast Self-Examination, α = Cronbach's alpha, SD = Standard Deviation

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