Leadership Qualities and Breast Cancer Knowledge among Medical Students of Rawalpindi Medical University, Pakistan

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ABSTRACT

This study aims to promote the importance of awareness of the early diagnosis of breast cancer among females. And this can be achieved by increasing knowledge and leadership qualities among medical students. We conducted a study to assess the knowledge, attitudes, and practices related to breast cancer screening among medical healthcare professionals. This unique notion of merging these two concepts which are knowledge of Breast cancer and Leadership qualities among medical students is vital because these qualities, if present concurrently, can bring an extraordinary change in reducing the mortality rate due to breast cancer. Medical students can play a major role in this purposeful task by actively participating in activities such as arranging awareness programs, counseling the patient for self-examination, and ensuring the importance of early diagnosis and treatment. This cross-sectional study was conducted from January 2023 to March 2023 in Rawalpindi Medical University Pakistan. The data from 500 students were analyzed. The Likert scale questionnaire was designed for this study.

In Pakistan, the risk of developing breast cancer has increased, with one in every nine women at risk of developing the disease in her lifetime [3]. Pakistan has one of Asia's highest age-standardized incidence rates of breast cancer. [4] According to the United States Breast Cancer Foundation, about 1 out of 8 U.S. females (about 13%) will develop invasive breast cancer throughout their lifetime. The American Cancer Society's estimates for breast cancer in the United States for 2023 are: About 297,790 new cases of invasive breast cancer will be diagnosed in women. About 55,720 new cases of ductal carcinoma in situ (DCIS) will be diagnosed. About 43,700 women will die from breast cancer.

The results of the study when analyzed on SPSS about the knowledge of breast cancer and Leadership qualities among medical students showed r value (correlation coefficient) more than 0.7 and P-value (significance value) less than 0.05 in all the questions which is a strong relationship.

Keywords: Breast Cancer, Leadership Qualities, Medical Students, Knowledge, Early Diagnosis, Counseling, Awareness Programs, Teamwork.

Introduction:

Medical students play an important role in creating a welcoming environment for patients in their communities. To improve the prognosis of breast cancer, there is an urgent need to inculcate a positive attitude regarding screening methodologies such as mammography. Medical students must actively participate in imparting the knowledge of breast cancer amongst women. Screening aids in the early detection of cancer. Early diagnosis and treatment of breast cancer result in a better prognosis [1]. Women in the healthcare profession can positively influence the general public's attitudes, beliefs, and practices. As a result, healthcare workers themselves must have adequate knowledge and a positive attitude. [1] Medical education reform advocates are concerned with preparing physicians to meet the challenges of today's complex healthcare system. [34] Effective management of breast cancer is a complicated yet exceedingly valued element of healthcare training. There is an absolute requirement to increase the training of medical students in the management of breast cancer as well as a need to train them to educate the women not only in the hospitals but also in the various seminars, moreover, the students must be trained to themselves lead such awareness programs and arrange educational conferences in this regard. There is also a need to motivate medical students to participate in research work related to breast cancer, which will allow them to read the maximum amount of literature on this subject. [37].

For the healthcare professionals to perform at their optimum in treating not only breast cancer but any ailment, they need to have a comprehensive knowledge of the inter-related disciplines of the medical field such as allied fitness, nursing, pharmacy, dentistry, oncology, and medicine. [37] Consequently, training in leadership skills, courses in event arrangement, and education regarding the improvement in cancer prognosis have to be a part of medical education. There is emerging a new standard of public healthcare, one that focuses firstly and most importantly on the awareness of the disease in the general population in addition to the autonomy of patients. It must also include the emphasis on teamwork and the ever-present need for medical students to take the initiative in informing the public of the conditions like breast cancer which can be further improved by instilling in them the spirit of teamwork and leadership skills. [37].

Methods:

This cross-sectional study was conducted at Rawalpindi Medical University in Pakistan. The subjects were clinical medical students (third year to the fifth year). In Pakistan medical schools are for five years. The first two years are preclinical and the last three years are clinical. The average age of the students was 21 years with the lowest 19 years and the highest 23 years. Likert Scale Questionnaire was used to make the questions simple and understandable for the students. The study period was from January 2023 to March 2023. The process of conceiving the study started in January 2023 followed by a literature search, and preparation of a synopsis. Medical

students from the fifth year were assigned to collect the data.

Simple Random sampling techniques were used to approach clinical medical students for recruitment. A list was generated randomizing the sequence of recruitment of study groups for each day of the recruitment period. 8 to 10 students were interviewed each day. Upon informed verbal consent, individual participants were questioned.

After the literature review, a Likert Scale questionnaire was developed as a data collection tool to assess the leadership qualities and knowledge of breast cancer in medical students. The questionnaire designed included questions for assessing the knowledge of leadership qualities and breast cancer awareness in medical students. The questionnaire initially included 20 questions for breast cancer knowledge and 18 questions for leadership qualities (after cleaning and editing of the data, remained 16 questions for breast cancer knowledge and 14 questions for leadership qualities).

Before the interview verbal consent was taken from each student and the management of the data collection site was respected by the researcher. The purpose of the study was explained to the students as well as assurance was given for keeping their information confidential and that the information will only be used for making opinions on the issue. Any sensitive question that could hurt the feelings of the students was not asked directly but an indirect way of asking the question was adopted so that the student could not feel it negatively.

Data management was done by careful analysis of the data. Data cleaning and editing were done systematically and by double-checking the data which helped to identify potentially sensitive questions.

The collected data was analyzed in Excel. Frequency tables were generated in Excel. Where missing responses were more, for instance, 25%, in such cases the questionnaire was deleted from the analysis, and at certain places where missing responses were 2 or 3, there the sample was removed from the analysis thus reducing the sample size. Initially, the sample size was 540 but after cleaning, the final data size remained 500. Finally, the data was analyzed on SPSS to get the P-value (significant value) and R-value (Correlation) Scanner sheets were used to enter the data directly on the computer. Data was presented in frequency tables in figures, in percentages and graphic presentation was also given.

Results:

Circle the number that represents how strongly you feel about the statement by using the following scoring system:

5. Strongly agree.

4. Agree.

3. Neutral.

2. Disagree.

1. Strongly disagree.

Total 500

Table # 1 Likert Scale Questionnaire:

Serial #	Questions	Strongly Agreed	Agreed	Neutral	Disagree	Strongly Disagree
1	Pakistan has the highest Breast Cancer rate in Asia	75 (15%)	190 (38%)	170 (34%)	60 (12%)	5 (1%)
2	Different studies show Breast Cancer kills nearly 40,000 women every year in Pakistan.	85 (17%)	240 (48%)	105 (21%)	60 (12%)	10 (2%)
3	Breast Cancer is related to genetic, cultural, environmental, and lifestyle factors.	130 (26%)	285 (57%)	50 (10%)	25 (5%)	10 (2%)
4	Infiltrating Ductal Carcinoma is seen in 80% of cases of breast cancer, and infiltrating lobar carcinoma is the second most common.	85 (17%)	225 (45%)	130 (26%)	50 (10%)	10 (2%)
5	The alarming signs of Breast cancer are a lump in the breast, skin irritation or dimpling, retraction, and redness of the nipple, and discharge from the nipple other than breast milk.	185 (37%)	225 (45%)	60 (12%)	25 (5%)	5 (1%)
6	For men, the lifetime risk of getting Breast Cancer is 1 in 1000.	125 (25%)	190 (38%)	110 (22%)	50 (10%)	25 (5%)
7	According to WHO incidence of Breast Cancer is increasing in Young Females.	105 (21%)	260 (52%)	85 (17%)	25 (5%)	25 (5%)
8	Young Females are BRCA1 or BRCA2 gene positive in 5 to 10 percent of cases.	95 (19%)	205 (41%)	170 (34%)	25 (5%)	5 (1%)
9	For early detection of Breast cancer, all women between ages 40 to 44 should have a choice of undergoing Breast Screening with mammograms annually.	140 (28%)	250 (50%)	50 (10%)	35 (7%)	25 (5%)
10	All women between ages 45 to 54 should have mammograms annually.	105 (21%)	310 (62%)	35 (7%)	25 (5%)	25 (5%)
11	The BRCA gene is tested in young females because Breast Cancer appears at an early age in genetically positive patients.	130 (26%)	200 (40%)	125 (25%)	35 (7%)	10 (2%)
12	Young females with a family history of breast cancer should start doing Breast self-examination at the age of 20 years.	215 (43%)	190 (38%)	60 (12%)	25 (5%)	10 (2%)
13	It is the responsibility of doctors and primary health providers to arrange Breast awareness programs.	230 (46%)	165 (33%)	70 (14%)	30 (6%)	5 (1%)

14	In a Breast Cancer awareness seminar held in any college in this city, medical students should participate.	165 (33%)	240 (48%)	60 (12%)	25 (5%)	10 (2%)
15	In a Breast Cancer awareness program held in any rural area, medical students should participate.	215 (43%)	185 (37%)	65 (13%)	25 (5%)	10 (2%)
16	Proper medical knowledge and training is needed for participating in a Breast cancer awareness program	160 (32%)	200 (40%)	65 (13%)	50 (10%)	25 (5%)
17	Medical students participating in health care programs should have excellent communication skills, flexibility, and adaptability.	150 (30%)	230 (46%)	60 (12%)	35 (7%)	25 (5%)
18	Good professional skills/ judgment and strong character is the core requirement for a medical student organizing a Breast Cancer awareness program.	150 (30%)	230 (46%)	60 (12%)	35 (7%)	25 (5%)
19	Teamwork is essential for all the med-students to carry out a smooth and successful health awareness program.	190 (38%)	200 (40%)	65 (13%)	35 (7%)	10 (2%)
20	Before deciding on a place to organize a Breast Cancer awareness program women should be encouraged to participate in the program.	215 (43%)	190 (38%)	60 (12%)	25 (5%)	10 (2%)
21	Women need to understand the importance of participating in a Breast awareness program	235 (47%)	180 (36%)	50 (10%)	25 (5%)	10 (2%)
22	Mostly the women are shy and hide their problems related to Breast.	240 (48%)	165 (33%)	60 (12%)	25 (5%)	10 (2%)
23	Female medical students can play an important role in convincing the women about the importance of disclosing their problems related to Breast.	215 (43%)	200 (40%)	60 (12%)	20 (4%)	5 (1%)
24	Women who understand the benefits of early detection of Breast Cancer not only participate in the Breast Cancer awareness program but also help other women to take part in the program.	180 (36%)	190 (38%)	85 (17%)	35 (7%)	10 (2%)
25	The knowledge, skills, and attitude of medical students regarding leadership and management help lead a health awareness program.	165 (33%)	230 (46%)	60 (12%)	40 (8%)	5 (1%)

26	There is a growing acknowl-edgment that medical students need to develop leadership qualities in order to play their role actively in medical ser-vices.	165 (33%)	220 (44%)	95 (19%)	10 (2%)	10 (2%)
27	The team leader of an aware-ness program should include one or two senior members in making a final decision.	195 (39%)	165 (33%)	110 (22%)	25 (5%)	5 (1%)
28	In an awareness program, all team members should be good at motivating a patient for rou-tine screening.	190 (38%)	210 (42%)	65 (13%)	25 (5%)	10 (2%)
29	A team leader should be flexi-ble about making program changes.	125 (25%)	275 (55%)	70 (14%)	25 (5%)	5 (1%)
30	The organizer of a program should be effective at obtain-ing resources to support the program.	125 (25%)	260 (52%)	70 (14%)	35 (7%)	10 (2%)

Data was collected from Rawalpindi Medical University Pakistan from January 2021 to June 2021. Initially data was analyzed on excel and percentages were taken for each value. Then data was transferred to SPSS to get the P value (significant value) and r value (Correlation Coefficient). Reliability analysis was done at the same. All the results saved on excel also transferred to word document.

The P value for most of the variable is less than 0.05, which indicates a positive relationship between the variables. Correlation Coefficient for majority of variables is greater than 0.5 which indicates a strong cor-relation.

Following are some important relationship results showing P values and r correlation coefficient values in-dicating a strong relationship between Knowledge of Breast Cancer and Leadership qualities in Medical Students of Rawalpindi Medical University Pakistan.

Results Showing Strong Relationship between Breast Cancer Knowledge and Leadership Qualities in Medi-cal Students with P Values Less than 0.05

Table # 2

Serial #	Breast Cancer Knowledge Questions	Leadership Qualities Ques-tions	P value
1	Q2) Different studies show Breast Cancer kills nearly 40,000 women every year in Pakistan	Q17) Medical students par-ticipating in health care pro-grams should have excellent communication skills, flexi-bility, and adaptability.	0.048

|			
2	Q3) Breast Cancer is related to genetic, cultural, environmental, and lifestyle factors.	Q25) The knowledge, skills, and attitude of medical students regarding leadership and management help lead a health awareness program.	**0.008**
3	Q4) Infiltrating Ductal Carcinoma is seen in 80% of cases of breast cancer, and infiltrating lobar carcinoma is the second most common	Q26) There is a growing acknowledgment that medical students need to develop leadership qualities in order to play their role actively in medical services.	**0.023**
4	Q5) The alarming signs for Breast cancer are a lump in the breast, skin irritation or dimpling, retraction, redness of the nipple, discharge from the nipple other than breast milk	Q19) Teamwork is essential for all the med-students to carry out a smooth and successful health awareness program.	**0.001**
5	Q7) According to WHO incidence of Breast Cancer is increasing in Young Females	Q18) Good professional skills/ judgment and strong character is the core requirement for a medical student organizing a Breast Cancer awareness program	**0.013**
6	Q8) Young Females are BRCA1 or BRCA2 gene positive in 5 to 10 percent of cases	Q20) Before deciding a place to organize a Breast Cancer awareness program women. should be encouraged to participate in the program.	**0.006**
7	Q9) For early detection of Breast cancer all women between ages 40 to 44 should have a choice of undergoing Breast Screening with mammograms annually.	Q29) A team leader should be flexible about making changes in program	**0.003**
8	Q10) All women between ages 45 to 54 should have a mammogram annually.	Q25) The knowledge, skills, and attitude of medical students regarding leadership and management help lead a health awareness program.	**0.031**
9	Q11) BRCA gene is tested in young females because Breast Cancer appears at an early age in genetically positive patients.	Q24) Women who understand the benefits of early detection of Breast Cancer not only participate in the Breast Cancer awareness programs but also help other women to take part in the program.	**0.027**
10	Q12) Young females with a family history of breast cancer should start doing Breast self-examination at the age of 20 years.	Q23) Female medical students can play an important role in convincing the women about the importance of disclosing their problems related to Breast.	**0.003**
11	Q14) In a Breast Cancer awareness seminar held in any college of this city medical students should participate.	Q28) In an awareness program all team members should be good at motivating a patient for routine screening.	**0.001**
12	Q15) In a Breast Cancer awareness program held in any rural area medical students should participate.	Q17) Medical students participating in health care programs should have excellent communication skills, flexibility, and adaptability.	**0.013**

Results Showing a Strong Relationship between Breast Cancer Knowledge and Leadership Qualities in Medical Students indicated with r correlation coefficient more than 0.5

| Serial #	Breast Cancer Knowledge Questions	Leadership Qualities Questions	r correlation coefficient
1	Q2) Different studies show Breast Cancer kills nearly 40,000 women every year in Pakistan	Q29) A team leader should be flexible about making changes in program	0.955
2	Q3) Breast Cancer is related to genetic, cultural, environmental, and lifestyle factors.	Q26) There is a growing acknowledgment that medical students need to develop leadership qualities in order to play their role actively in medical services.	0.928
3	Q4) Infiltrating Ductal Carcinoma is seen in 80% of cases of breast cancer, and infiltrating lobar carcinoma is the second most common	Q18) Good professional skills/ judgment and strong character is the core requirement for a medical student organizing a Breast Cancer awareness program	0.837
4	Q5) The alarming signs for Breast cancer are a lump in the breast, skin irritation or dimpling, retraction, redness of nipple, discharge from nipple other than breast milk.	Q19) Teamwork is essential for all the med-students to carry out a smooth and successful health awareness program	0.994
5	Q7) According to WHO incidence of Breast Cancer is increasing in Young Females	Q24) Women who understand the benefits of early detection of Breast Cancer not only participate in Breast Cancer awareness programs but also help other women to take part in the program.	0.841
6	Q8) Young Females are BRCA1 or BRCA2 gene positive in 5 to 10 percent of cases.	Q28) In an awareness program all team members should be good at motivating a patient for routine screening.	0.815
7	Q9) For early detection of Breast cancer all women between ages 40 to 44 should have a choice of undergoing Breast Screening with mammograms annually	Q17) Medical students participating in health care programs should have excellent communication skills, flexibility, and adaptability.	0.995
8	Q10) All women between ages 45 to 54 should have a mammogram annually	Q25) The knowledge, skills, and attitude of medical students regarding leadership and management help lead a health awareness program.	0.912
9	Q11) BRCA gene is tested in young females because Breast Cancer appears at an early age in genetically positive patients.	Q20) Before deciding a place to organize a Breast Cancer awareness program, women	0.835
10	Q12) Young females with a family history of breast cancer should start doing Breast self-examination at the age of 20 years.	Q23) Female medical students can play an important role in convincing the women about the importance of disclosing their problems related to Breast	0.981

Table # 3

| 11 | Q14) In a Breast Cancer awareness seminar held in any college of this city medical students should participate. | Q27) The team leader of an awareness program should include one or two senior members in making a final decision. | **0.997** |
| 12 | Q15) In a Breast Cancer awareness program held in any rural area medical students should participate. | Q30) Organizer of a program should be effective at obtaining resources to support the program. | **0.982** |

Rliability Analysis shows Chronbach alpha value=0.93 Results Compilation: GRAPH # 1
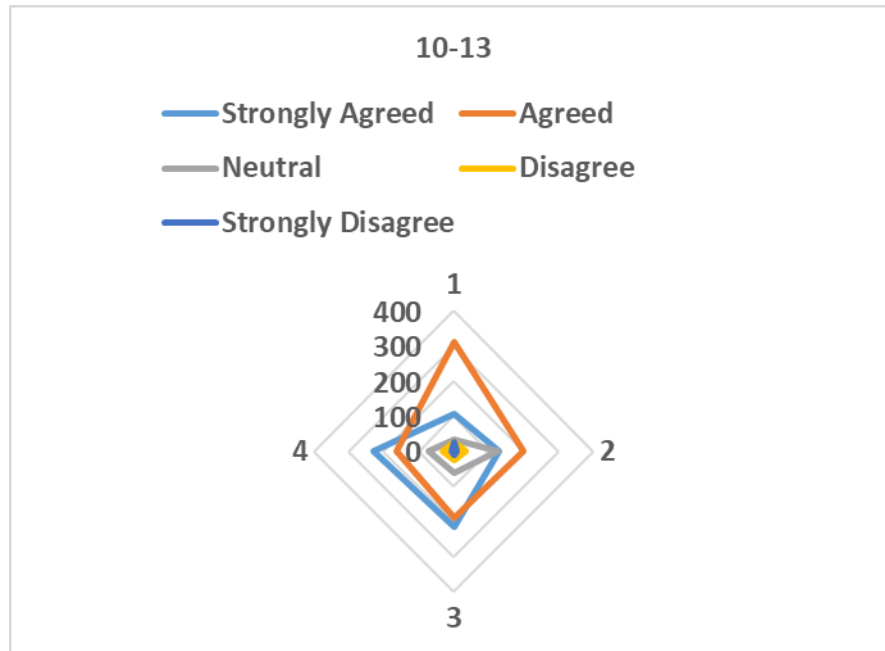
Reliability Analysis revealed a Chronbach alpha value of 0.934 which is significant in the result compilation indicating a strong relationship between Leadership qualities and knowledge of Breast cancer among Medical Students.
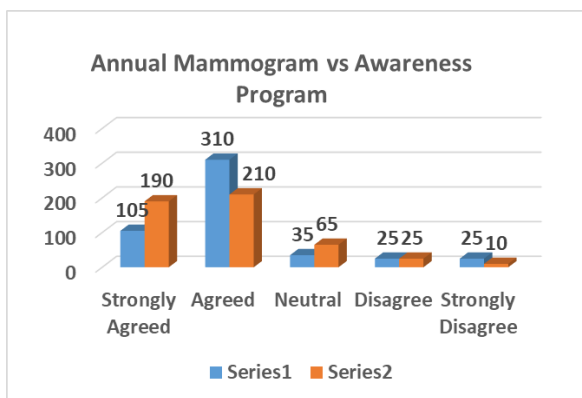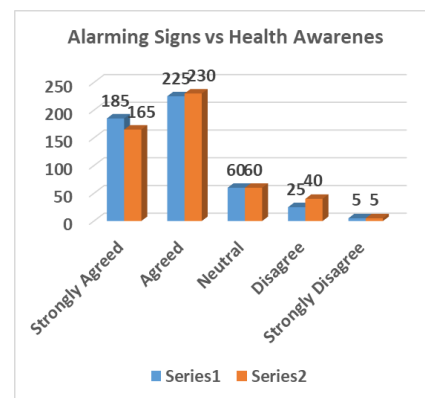
GRAPH # 2, Q15 & Q19
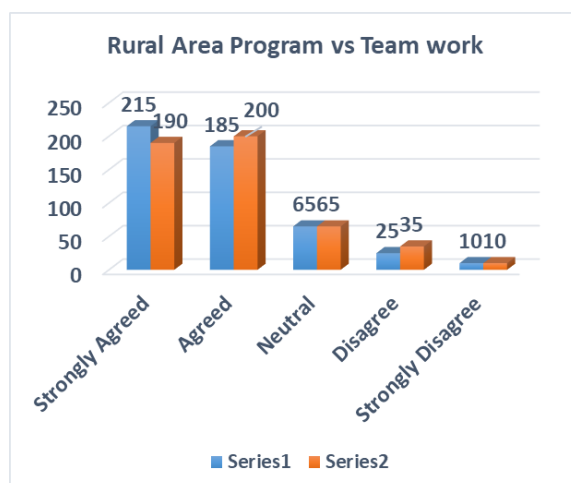
The above bar chart, graph number 2 shows the relationship between question number 15 in blue color bars and question number 19 in brown color bars. It is the relationship between the Breast Cancer Awareness Program in a rural area and Teamwork by Medical Students. Each bar has either the same value for both questions or the values are very close to each other. The p values or significance value of the relationship between breast cancer programs in rural areas and teamwork by medical students is 0.002 and the r correlation coefficient is 0.988.

GRAPH # 3, Q10 & Q 28

Annual Mammogram vs Awareness Program

Graph # 3 is demonstrating a relationship between Annual Mammogram and Motivation in an awareness Program. The values are close to each other and if we compare agreed with disagreed, the agreed values are higher than disagreed values indicating a strong relationship between the two variables. Here the P-value is 0.079 r correlation coefficient is 0.835.

GRAPH # 4, Q11 & Q16

BRCA Gene vs Proper Medical Knowledge

Graph number 4 shows a strong relationship between the knowledge of BRCA gene-positive, responsible for the appearance of Breast Cancer at an early age, and having Proper Medical knowledge/ training for participating in the Breast Cancer Awareness Program because without knowing the disease it is not possible to understand and convey the right message. The P-value between BRCA gene knowledge and the possibility of having medical knowledge is 0.042 and the correlation coefficient r is 0.894.

GRAPH # 5, Q5 & Q25

Alarming Signs vs Health Awarenes

Graph number 5 depicts the relationship between Alarming signs of Breast Cancer and awareness of these signs among Medical Students of Rawalpindi Medical University. This relationship indicates that the students can conduct Breast Cancer Awareness Programs and can provide this knowledge to women attending their curricula. The highest response is seen in the Agreed category of questions. The responses to both questions are very close to each other. The P-value between the relationships of the above two statements is 0.001 correlation coefficient r is 0.993. These two values are very strong.

GRAPH # 6, Q 6 & Q 18

**Proper Medical knowlege vs Strong Professional Character**
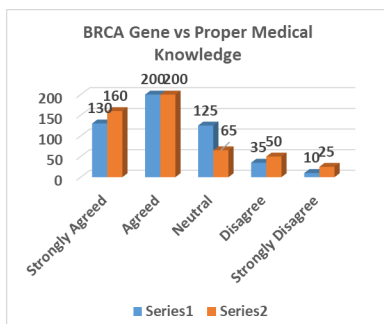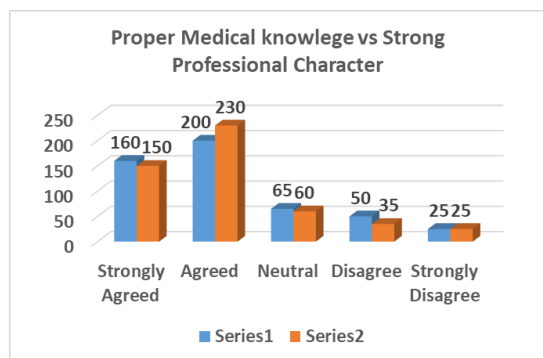
Graph number 6 shows a close association between proper medical knowledge and strong professional characteristic. For organizing a successful breast cancer awareness program, excellent professional skills and knowledge are mandatory. It is clear from bar chart# 6 and from the P-value which is 0.019 and the correlation coefficient r is 0.937.

Graph # 7, Q1

**Pakistan has the highest Breast Cancer rate in Asia**
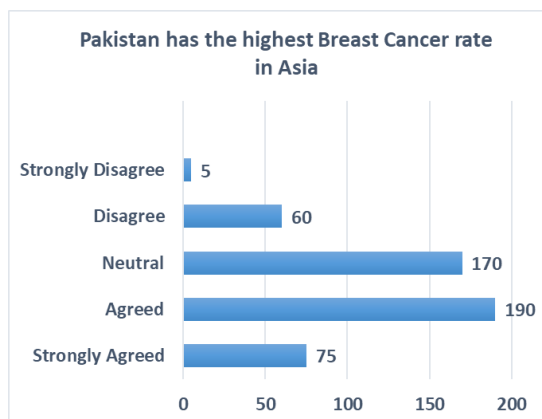
A survey carried out in Pakistan in November 2020, concluded that Pakistan has the highest rate of breast cancer in Asia as approximately 90,000 women are diagnosed with the disease every year out of whom 40,000 pass away. Question number 1 is about this statistic. 75 students strongly agreed with this statement, 190 agreed, 170 remained neutral and 60 disagree. This shows that all students are not aware of the fact mentioned above.

Graph # 8, Q2

**Breast Cancer kills nearly 40,000 women every year**
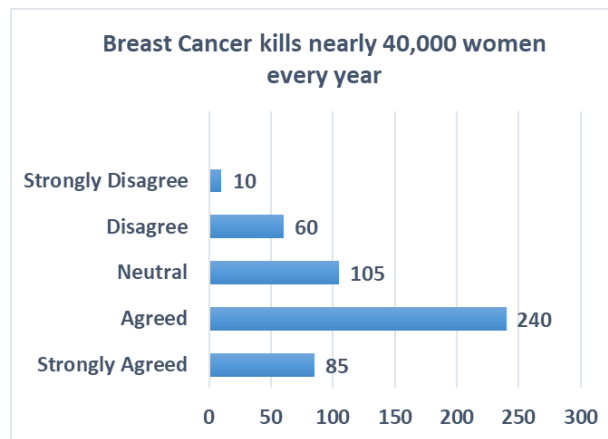
Question number 2 is related to question 1, stating every year 40,000 women die because of breast cancer. Here again highest number of (240) students agree, 105 remain neutral and 60 disagree.

Graph # 9, Q 3

Breast Cancer is related to genetic, cultural, environment and lifestyle factors
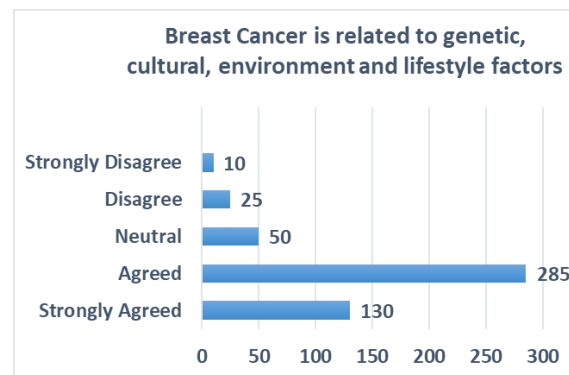
Medical students inquire about question 3 "Breast Cancer is related to genetic, cultural, environmental and lifestyle factors". [58] In response to this question, 130 students strongly agreed and 285 students agreed, only 50 students disagree with the above statement.

Graph # 10, Q 5

Awarenesss about alarming signs for Breast cancer
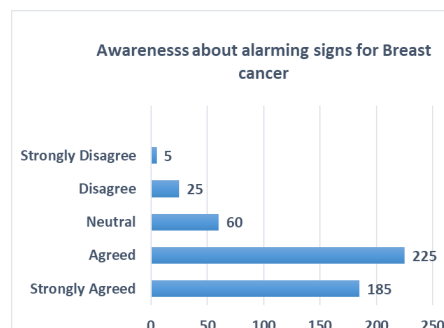
Question number 5 is represented by graph number 10 is for awareness about the alarming signs of breast cancer. 185 students have perfect knowledge about this question, 225 agree with the statement, 60 remain neutral meaning they are not sure about it while 25 students disagree and 5 students strongly disagree.

Graph #11, Q7
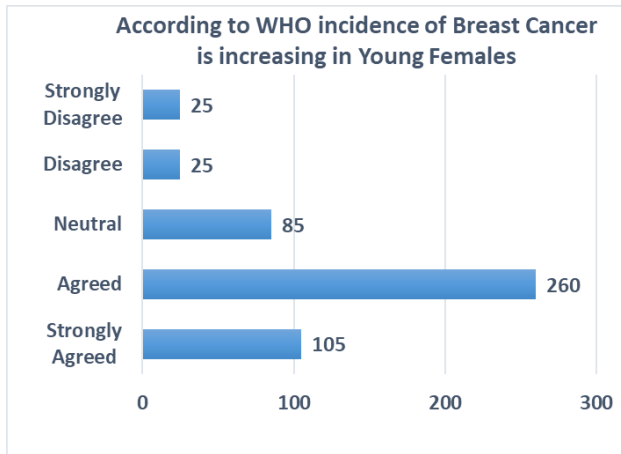
Question number 7 is about the Incidence of Breast Cancer is increasing in young females (WHO), [59]. The majority of students agreed with this question 105 strongly agreed, 260 agreed.

Graph # 12, Q10
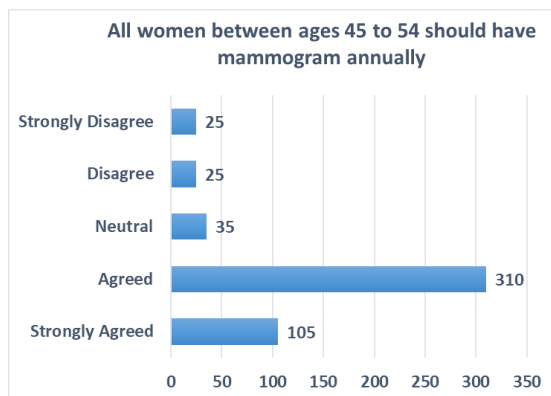
Question number 10 results can be seen in graph number 12 having the highest responses (310) in the agreed section, with strongly agreed 105. Disagree and strongly disagree are 25 each.

Graph # 13, Q 12
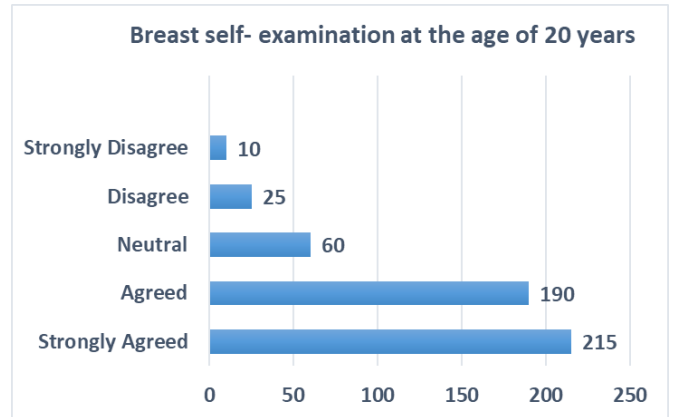
Since there is an increase in the incidence of breast cancer at a young age in females it is recommended by the American Cancer Society (ACS) that a female should start breast self-examination at the age of 20 years. Response to this question has been strongly endorsed by 215 medical students and190 students agreed. While disagreed students are 25.

Graph # 14, Q 18
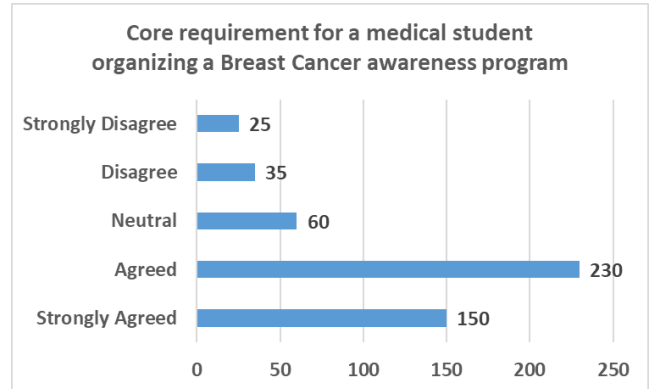
Question # 18 says Good professional skills/ judgment and strong character is the core requirement for a medical student organizing a Breast Cancer awareness program. The response is highest at 230 in the agreed section whereas the strongly agreed are 150. Disagree and strongly disagree are 35 and 25 respectively.
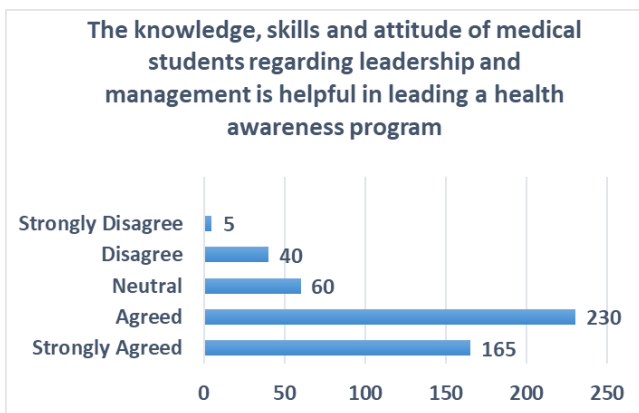
Graph # 15, Q 17

Medical students participating in health care program should have excellent communication skills

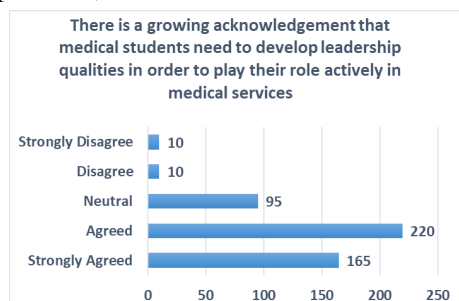| Response	Value
Strongly Disagree	25
Disagree	35
Neutral	60
Agreed	230
Strongly Agreed	150
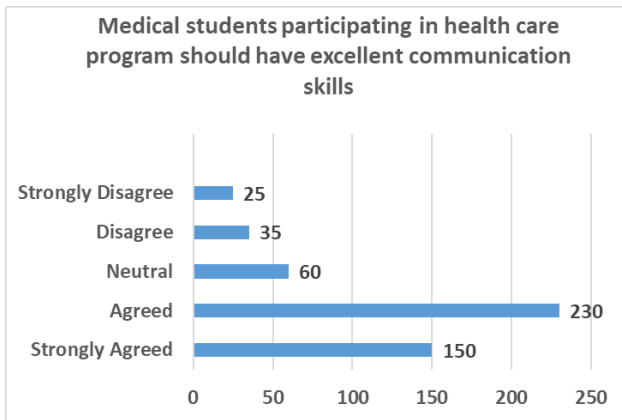
The response to question # 17 is similar to the response to question # 18. It states Medical students participating in health care programs should have excellent communication skills, flexibility, and adaptability. Both these questions are related to Leadership qualities. The highest response is 230 falls in the agreed section.

Graph # 16, Q25

The knowledge, skills and attitude of medical students regarding leadership and management is helpful in leading a health awareness program

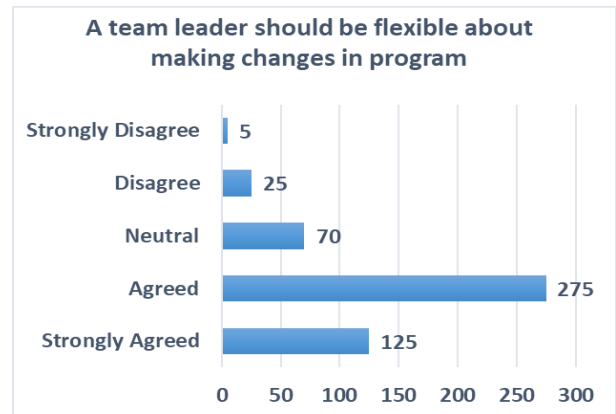| Response	Value
Strongly Disagree	5
Disagree	40
Neutral	60
Agreed	230
Strongly Agreed	165

The responses to question number 25 which is represented by graph number 16 are quite near to the responses to questions number 17 and 18. All these questions are related to Leadership qualities.

Graph # 17, Q 26

There is a growing acknowledgement that medical students need to develop leadership qualities in order to play their role actively in medical services

Response	Value
Strongly Disagree	10
Disagree	10
Neutral	95
Agreed	220
Strongly Agreed	165

Responses to Question number 26 shown in graph number 17 are very interesting and important. The question is "There is a growing acknowledgment that medical students need to develop leadership qualities in order to play their role actively in medical services". Here the strongly agreed and agreed responses are 165 and 220 respectively.

Graph # 18, Q 29

A team leader should be flexible about making changes in program

Response	Value
Strongly Disagree	5
Disagree	25
Neutral	70
Agreed	275
Strongly Agreed	125

Question number 29 is represented by graph number 18. Conferring to this question "A team leader should be flexible about making changes in the program." This statement is quite important for leaders because arranging a proper awareness program is only possible when planned properly. Sometimes according to the situation leader has to make changes in the program to make it successful. Response to this question is 125 students strongly agreed and 275 agreed while only 25 disagree and 5 disagreed.

Discussion:

Knowledge and awareness play an essential role in the early detection and optimal treatment of breast cancer. The level of knowledge of medical professionals and their attitudes toward breast cancer screening methods are important determinants of their patient's implementation of these methods. Leadership qualities are the pillar stone of the posi-

tive attitude of a medical professional which is essential for the practical life when a campaign against disease has to be carried out. Spreading a message for awareness of a disease and conveying the importance of early diagnosis is only possible when a health professional has adequate knowledge of a health problem along with Leadership qualities. The Presence of both of these skills, knowledge, and attitude make a health professional a gemstone for a community whose performance not only creates a healthy atmosphere in a community but also prepares a community to adopt a healthy attitude and change their lifestyle that makes a strong and disease-free nation. Therefore, this study was conducted to evaluate the knowledge of breast cancer screening and leadership qualities among medical students of Rawalpindi Medical College of Pakistan.

This unique combination of two variables is the opening of a new research path which was done before to some extent but the results were not so much favorable as this cross-sectional study with a questionnaire on the Likert scale has proven the hypothesis positive when the data was run on SPSS. The results show plenty of knowledge of Breast Cancer as well as the knowledge of Leadership qualities among our medical students. Since these students have good knowledge of both variables proves their capability to carry out successful Breast Cancer awareness programs in the community. A step towards early diagnosis and treatment of women with Breast Cancer.

A study [1] on Knowledge attitudes, and practices related to breast cancer screening carried out in Saudi Arabia found that knowledge, attitudes, and prac-

tices regarding breast cancer screening were below expectations. Related research is done in Pakistan [2] looked for knowledge of breast cancer in general practitioners and women and concluded that there is a need for more knowledge of screening for breast cancer and that their female assistants should be well trained in breast examination of patients. In order to find the knowledge of breast cancer in female medical students and nurses in Oman a study [5] determined that breast cancer education and self-examination training programs with a focus on skills can motivate participants to perform regular breast self-exams and thus can help trainees train other women to be self-sufficient. Breast self-examination is the best way for early detection of breast cancer. Another study [6] was done at Al-Azhar University Palestine and focused on the frequency of breast self-examination. It stated that knowledge of breast disease and its related components is generally good. However, there is still a gap in information on issues related to methods of early detection and management of breast cancer. In addition, students were not told the frequency and duration of breast self-examination frequency practice. Regular breast examination practice will be increased among the students if we teach and inform them about the breast examination practice periods. (This shows the importance of adopting a training program to increase breast cancer awareness and breast self-examination practice, part of local and international efforts to control this hazardous disease.). Yet, our study has not focused on breast self-examination in particular. We used a general term of knowledge, awareness and leadership qualities among medical students.

A very precise study [10] observed in Lebanese fe-

males highlighted upon the issue stating regular breast cancer screening is associated with better survival, but adherence to guidelines depends on good knowledge and attitudes. This study aimed to assess the level of breast cancer knowledge, attitudes and practices among Lebanese women, and to identify their socio-demographic determinants and barriers to breast cancer with the use of mammography. In our study, there is a question on this matter. Question number 22 states that women are shy in disclosing their problems. While question number 23 says that female medical students should guide females about the importance of disclosing their problems. Obviously, if a female discloses her medical problems to a health professional then it is possible to diagnose the disease in early stages and therefore good prognosis. In UAE a study [11] on breast awareness program reveals about the participants were aware of breast cancer, knowledge of the risk factors and warning signs/symptoms was relatively low. Knowledge of breast self-examination implementation is particularly low. This highlights the importance of raising breast cancer and breast self-examination awareness among young women in the UAE. A study [12] conducted in a female Turkey University, on awareness of females about the importance of Breast self-examination concluded, in developing countries, in order to have adequate knowledge about breast self-examination, in young women and practice BSE, it is important to increase breast health awareness and breast cancer awareness among this age group.

Our study mostly concentrated on the importance of awareness, knowledge, and leadership qualities among medical students, while most of the studies done on topics related to our study talked about breast self-examination. Few studies highlighted the importance of awareness such as the study conducted at a Syrian university [13]. It shows a lack of consciousness among medical students. Perhaps most importantly, there is a lack of awareness-raising programs accessible to all populations, especially medical students and physicians, as they play an important role in raising awareness about the early detection of breast cancer.

The ultimate purpose of this study is to find out the capability of our medical students to carry out breast cancer awareness programs efficiently, and successfully. Since awareness is important for early diagnosis of a disease which in turn leads to a good prognosis [13] It must also include an emphasis on teamwork and a continuing need to take the initiative to educate the public about conditions like breast cancer that medical students can improve by instilling team spirit and leadership skills [37]. Therefore, in our research two issues are presented simultaneously that is breast cancer knowledge and leadership qualities. P values for most of our variables are less than 0.05, indicating a positive relationship between the two variables. Correlation coefficients for most variables are greater than 0.7, indicating a strong correlation hence, a strong relationship between breast cancer knowledge and leadership skills. Reliability analysis showed a Chronbach alpha value of 0.934, which was significant for a compilation of results, indicating a strong relationship between leadership skills and breast cancer knowledge among medical students. When talking about early diagnosis of breast cancer leading to a good prognosis, we should always educate medical students and

healthcare professionals not only to teach them about breast cancer but also to teach them teamwork and leadership skills.

Conclusion:

The incidence of Breast cancer is increasing all over the world. Even in younger females below 30 years cases are reported unexpectedly [59]. Multiple risk factors are suspected in the causation of this malignancy such as age. Family history. Socio-economic status, high BMI, age at menarche, contraceptive pills, alcohol consumption, smoking, and HRT [59]. The knowledge of the symptoms, risk factors of breast cancer, and leadership qualities were satisfactory in the medical students due to the clinical impact, and their confidence in recognizing the symptoms of breast cancer increased significantly. However other studies that were carried out in the past [3.6, 7, 8, 15] the participants were not medical students, and therefore the responses were not favorable. This indicates that medical students, doctors, and other health providers should participate in awareness programs about breast cancer. In our study when we analyze the data on SPSS it showed a P value/significance value between breast cancer knowledge and leader qualities mostly less than 0.05 and a correlation coefficient r value greater than 0.7 which shows a strong relationship between breast cancer knowledge and leadership qualities among our medical students. There is a need for more studies on this topic in the future. These studies should be done using medical professionals. The awareness programs should also be carried out by medical professionals. There is a need for the training of non-medical professionals by medical professionals so that they can be useful in arranging breast cancer awareness programs.

Implications:

1. This study proves that our medical students have sufficient knowledge about breast cancer and essential leadership trades, This can have two pertinent implications:

2. On a smaller scale, the direct counseling of patients by medical students; with the extremely low doctor-to-patient ratio in the government hospitals, the responsibility of educating patients falls primarily on the medical students who spend the longest time with patients.

3. On a larger scale, medical students by successfully arranging awareness programs can play a vital role in detecting breast cancer in its early stages when it is curable.

4. Pakistan has a low health literacy rate. However, our doctors and medical students have good knowledge about health hence, they are professionally very strong, but the doctors are too much busy with their patients, therefore medical students should be encouraged to counsel the patients about monthly breast self-examination, signs of a malignant lump in the breast, and early approach to a doctor in case of any suspicion on breast self-examination.

5. The above-mentioned facts can be applied to medical students all over the world so that breast cancer can be controlled globally.

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