

Effectiveness of Using Social Media on Knowledge and Awareness of Breast Cancer among University Female Students

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Abstract:

Background: Breast cancer is the highest incident cancer among women in the world today as well as in Egypt. Improving the women awareness is significant in decreasing the overall morbidity and mortality of breast cancer. Social media brings a new dimension to healthcare as it offers a medium to communicate the possibility and potentially to be used by the female university students'. The current study aimed to assess the effectiveness of using social media on knowledge and awareness of breast cancer among university female students. A quasi-experimental design was used for a convenience sample of 110 university students. Two data collection tools were used a self-administered questionnaire and student's opinionnaire regarding using social media. The current study results concluded the acceptance of the research hypothesis that using of social media will improve level of knowledge and awareness in early detection breast cancer among female students at faculty of Nursing Bader University in Cairo and the significance differences at $P=0.000$ between total mean scores of pre and post knowledge. And implementation for the study program for all university students' especially non-medical students is highly recommended.

Key words: Breast cancer - Awareness -Female University Student -Social Media

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I. Introduction:

Breast Cancer (BC) is the second most frequent cancer and the fifth cause of cancer-related mortality worldwide [1]. BC remains a significant public health challenge considered in low- and middle-income countries. Incidence rates have been shown to increase yearly by as much as 5% with over 1 million projected new cases annually by 2020 [2,3].

In Egypt, the incidence of breast cancer is higher than the world average; estimated at 2625 per 100,000 women with a result of high mortality [4, 5]. The emersion of breast disease and subsequent development of cancer appears to be more aggressive in young women compared to its progression in older women [6, 7]. In 2008, the prevalence of breast cancer in women ≥ 15 years in sub-Saharan Africa was estimated at 23.5 per 100,000 women and approximately 35,427 women died from the disease (crude mortality rate of 12.8 per 100.000 women) [8, 9].

The high morbidity and mortality due to breast cancer can be in-part reduced if the lesion is detected early enough [10]. Bahia foundation (a non-prophets organization in Egypt) director' stated that the rate of recovery from breast cancer may reach up to 98 percent if the disease is detected in its early stages [11]. In this regard, women need to be "breast cancer aware" by being able to identify the risk factors and symptoms of breast cancer as well as risk reduction strategies.

Even still overcast in controversy, breast self-examination (BSE) still has an important role to play in the early detection of breast cancer in resource-constraint settings where routine clinical breast examination and mammography may not be feasible. In such settings, BSE is recommended because it is free, private, painless, easy, safe, and requires no specific equipment [12].

It has also been shown to improve breast health awareness and thus potentially allow for early detection of breast anomalies [13, 14]. The American Cancer Society also recommends that women from the age of 20 years onwards should be educated on the benefits of performing BSE monthly [15]. It had been demonstrated that factors related to women's awareness, knowledge and perceptions about breast cancer may contribute significantly to medical help-seeking behaviors [16]. Thus, considering the potential considerable role played by nurses in information dissemination.

In the past, radio, television, and print media (including posters, pamphlets, and magazines) were dominant techniques used in dissemination of preventive health messaging campaigns. While these outlets continue to play a role, they are now thought to be less effective in reaching the public as more and more health information is accessed online [17].

Availability and engagement with online content has now become a participatory activity and anyone with access to the internet can now obtain information almost instantaneously, interact with online discussions, and content [18]. This interaction simulates interpersonal communication and allows the Internet to act as a media providing two-way audible and visual feedback that is inherent in the convincing process [19]. Moreover, although people of all demographics are currently adopting these technologies to varying degrees, social media is desirable for health promotion in that content can be customized and suitability to the needs and preferences of different audiences.

Messages development for health promotion should account for user characteristics and target audience preferences for specific types of content and preferred technologies or tools [20]. As youth are some of the greatest users of social media, the development and availability of tailored content for this age group provides an opportunity to extend health promotion efforts needed. Newly is empirical evidence regarding the impact and usefulness of social media and the evaluation of internet-based interventions directed at disease prevention and health behavior change to guide future initiatives.

Using social media is known to be effective, highly disseminated and attractive by confidential ways that permit for youth female to discuss and explain their problems and relive their shame when discussing an issue related gynecological or their reproductive tract [21].

This study sought to assess the impact of using social media on awareness and early detection of breast cancer among female undergraduate students in faculty of nursing Bader University in Cairo as this was essential in informing policy for targeted interventions through the provision of guided educational training programs.

Justification of the Study:

The incidence of Breast Cancer (BC) in Egypt is rising and accounts for a leading cause of mortality. The rate of recovery from breast cancer may reach up to 98 percent if the disease is detected in its early stages. Recent advances in information technology and access have heralded a new era in the dissemination of health information especially among youth and in a context as cancer prevention and early detection. An understanding of the knowledge around breast cancer risk factors, screening, symptoms, and practices of breast self-examination (BSE) among female students are important steps in increasing awareness and early detection as well as good recovering rate for affected one.

Globally breast cancer is the most diagnosed cancer and the leading cause of cancer death among females 34 percent of Egyptian women suffer from breast cancer, the most common type of cancer in Egypt for women. Several factors are known to affect the risk of development of breast cancer. Age, familial and reproductive factors are the strongest risk factors. Lifestyle and hormonal risk factors have also been identified. The young female in Egypt has huge limitations and barriers for seeking reproductive health advices. Social media assumed to facilitating information and services for early detection risks for BC. The current study aimed at assessing of using social media in awareness and early detection of breast cancer among female students at faculty of nursing Bader University in Cairo.

Operational Definition:

Female awareness regarding breast cancer: Female students must always be cautious and watchful of any changes in their breasts that may signal a malignancy as well as be aware with her risk factors.

Aim of the Study:

- Assessing effectiveness of using of social media in awareness and early detection breast cancer among female students at faculty of Nursing Bader University in Cairo.
- Assess students' opinions' regarding using of social media in increasing their awareness level.

Through:

- Construct a social interacting group of faculty students.
- Develop updated content for a Whats App group communication that provide accurate, accessible and up to date information on breast cancer and the centers offered screening and treatments.
- Teach breast self-examination.
- Giving chance for communication and interacting with their peer and with researchers
- Identify and make referral for high-risk students.
- Compare the pre and post awareness level of breast cancer among students.

Research Hypothesis:

The using of social media will improve level of knowledge and awareness in early detection breast cancer among female students at faculty of Nursing Bader University in Cairo.

II. Subject and Methods:

Study Design, Setting, and Sampling:

A quasi-experimental study of pre and post intervention type conducted at Faculty of Nursing Bader University in Cairo. Convenience sample technique was used. The sample size included 123 female students, eligibility criteria included being female student, undergraduate enrolled in 1st year at academic years 2018/2019 second semester. Exclusion criteria included students who were pregnant, breastfeed or have any medical problem or disabilities interfering with the study. The final sample group after pilot study was 110 female students.

Tools of Data Collection:

1. A Self-Administered Questionnaire: developed by researcher in English language after reviewing the literatures. And examined by Jury of clinical oncology and maternity nursing consultant for items clarification & to evaluate content and face validity of the questions. Moreover, the questionnaire pilot tested on 10% of students (not include in the study sample) to check the clarity of the questions. Results of the pilot test used in adjusting the wording of some questions in order to be easier to understand. The Cronbach's Alpha of study questionnaire was tested. The questionnaire covered the following items:

Part one: Socio-demographic data such as age, marital status, academic year, residence, obstetrical history, gynecological history...etc.

Part two: 15 questions assess knowledge of students regarding risk factors for breast cancer, early warning signs, and methods of early detection and of different lines of treatment of breast cancer. The answers will "correct", "incorrect" and "don't know".

Part three: 12 questions assess students' knowledge regarding practices of BSE and timing for mammography

The scoring: Each correct answer scored by (3) and in correct by (2) and don't know by (1) the score was <50% unsatisfactory and ≥ 50 satisfactory knowledge.

2. Students Opinionnaire regarding Using Social Media: It developed by the researcher to measure the effectiveness of used methods in awareness and early detection. It formed from ten items regarding their satisfaction with the methods in interactive; confidential, quickly answering questions on time etc. scored by agree, disagree & don't know

The scoring: It scored by (3) for agree (2) for disagree and (1) for don't know. The total score was <50% not effective and ≥ 50 effective methods.

Pilot Study:

A pilot study was conducted on 10% of the study sample representing 13 students, from the setting to measure the practicability, feasibility and applicability of the study tools, as well as, time required for completion of each tool. Results obtained were useful in appraisal & modification of the tools. These subjects were excluded from the study sample.

Field Work/Procedure:

At the first an official letter was issued to the Dean of Faculty of Nursing to get the permission for the data collection after explaining the nature and the purpose of the study. Pre education data collection spent of 1 month started from 1st of February 2019, to assess the students' knowledge of BC and their practices of BSE. The material of teaching within the training program exploited included notes, audiovisual materials and demonstrations for BSE video. The content details of the program are included in the distributed booklet. The research was carried out on three phases (preparatory, implementation and evaluation phases):

First: The Preparatory Phase: this phase included:

Data collection tools were developed and tested for content validity. Study sample was selected and oriented with the study. And the researcher assigns admin for WhatsApp. group this step took one month.

Second and Third Phase: Implementation and Evaluation Phase:

1- A self-administered questionnaire was utilized to assess preprogram level of awareness regarding BC. The researcher assured student that the collected data will be confidential and will only be used for study. An oral agreement was obtained to participate in the study.

- 2- Two months interaction and communication for increasing student awareness and referral for suspected affected or risky students
- 3- Two months post program data collection by using self-administered questionnaire and method used students' opinionnaire and comparison of pre/post results and analysis of data

Ethical Consideration:

Approval of study conduction was obtained from the Research and Ethical Review Committee at the Faculty of Nursing Bader University in Cairo. In addition, the purpose of the study was explained to all participants and confidentiality and privacy was assured, an oral informed consent was obtained. There were also notified that the study contained no direct benefits or compensation for participation, but they may benefit from the study by becoming more aware of the knowledge and practices related to BC. Questionnaires were anonymous without any personal identifier. Rather they were coded using numbers on both pre- and post-test for comparison purposes. Participants in the study group who were found to have suspicious findings during the study were sent to clinicians for further investigation and appropriate management. Finally, all participants informed they could withdraw at any time without any interference for their enrolled academic achievements.

Data Management and Statistical Analysis

Data entry & statistical analysis was used Statistical Packages for Social Science (SPSS) version 20.0. Quality control was done at the stages of coding and data entry. Data presentations were used descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables. Qualitative variables were compared using chi-square test. The Paired 't' test was used to compare the pretest and posttest knowledge regarding BC and Chi Square test is used to bring out association between knowledge on BC and selected demographic variable.

III. Results:

Table (1) Distribution of the Study Sample According to Their Demographic Characteristic (N=110)

Variables	N	%
Mean age in years:	Mean \pm SD (19 \pm 1.2)	
Education:		
▪ Technical institute	13	11.8
▪ Secondary	97	88.2
Place of Residence:		
▪ Rural	77	70.0
▪ Urban	28	25.5
▪ Slums	5	4.5
Marital Status:		
▪ Single	100	90.9
▪ Married	7	6.4
▪ Divorced	3	2.7

Table (1) represents characteristics' of study sample as shown the mean age of the study sample was (19 \pm 1.2). Regarding to their educational level 88.2% of them have secondary education, while 11.8 % of them were technical institute of nursing .At the same table 70.0% of study sample they residence in rural, while 25.5% living in urban, and only 4.5% of them living in slums. As regards to their marital status 90.9% of them were single, while 6.4% of them were married, and 2.7% were divorced.

Figure (1) Source of Knowledge Regarding Breast Cancer among the Study Group

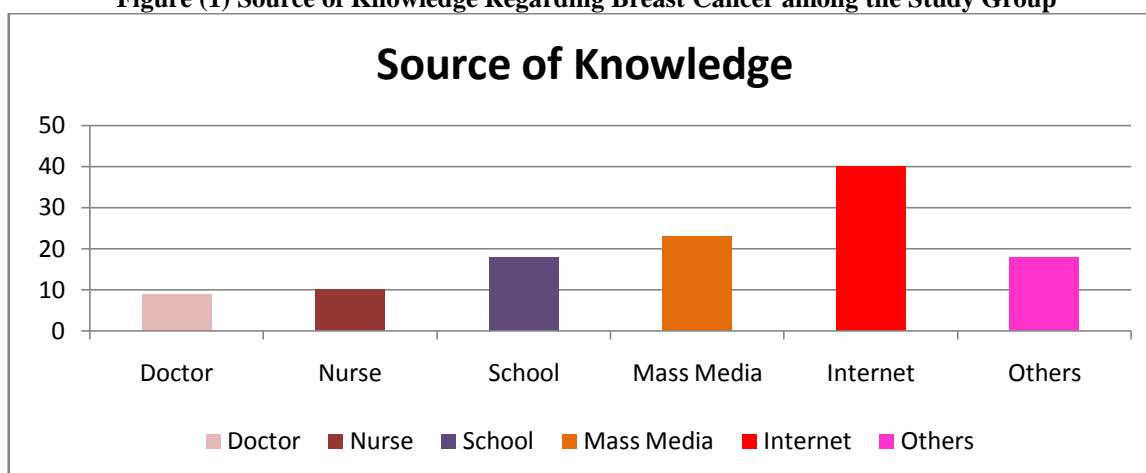


Figure (1) illustrates the sources of knowledge among study group regarding breast cancer as shown the highest sources were internet ,mass media and school (40%,23%and18%)respectively, whenever doctors were the lowest source. And others sources as reading, family, colleagues and neighbors were 18%.

Table (2) Distribution of the Study Sample According to Their Reproductive Profile (N=110)

Variables	N	%
Age at puberty		
▪ 10 to 12 years	15	13.6
▪ 13 to 15 years	80	72.7
▪ More than15 years	10	9.1
▪ Don't remember	5	4.6
Age at married? (n=7)		
▪ 15 to less than 20years	5	71.4
▪ 20 to less than 25years	2	28.6
Duration of menstrual flow?		
▪ 1 to less than 3 days	19	17.3
▪ 3 to less than 6 days	85	77.3
▪ More than 6 days	6	5.4
Regularity of menses?		
▪ Yes	76	69.1
▪ No	34	30.9
Family history for breast cancer:(n=7)		
▪ Closed family member	2	28.6
▪ Others	5	71.4
Obstetric History (n=7)		
Onset of first pregnancy directly after marriage	4	57.1
Previous breastfeed practice? (n=4)	4	57.1
History of previous abortion? (n=7)		
▪ Yes	3	42.9
▪ No	4	57.1
If yes, how was the abortion? (n=3)		

▪ Spontaneous	3	100.0
Methods of contraceptives used? (n=7)		
▪ IUD	3	42.9
▪ Hormonal	4	57.1

Table (2) summarizes the reproductive profile of the study sample as 72.7 % of the study sample they get their puberty from 13 to 15 years, and only 4.6 % don't remember. The same table illustrates that the age for the married students at time of marriage was ranged from 15 to less than 20 years. As regard to menstrual days of study sample 77.3% ranged from 3 to less than 6 days and 5.4 % have more than 6 days. In addition to their menstrual regularity flow 69.1% of study sample have regular flow and 30.9% irregular. 57.1% of the married study sample has pregnancy directly after marriage, while the residual hadn't. In the same table 57.1% of the study sample breast feed their children. On other hand 42.9% of the study sample has previous abortion, 100 % of them have spontaneous abortion. 42.9 of the study samples used IUD birth control methods, and 57.1% of them used hormonal methods.

Table (3): Comparison of Pre-Post Intervention Scores of Knowledge among Study Group (N=110)

Student's Knowledge	Pre		Post		t-test	p-value
	N	%	N	%		
Knowledge of BC definition, types						
- Satisfactory	27	24.5	99	90.0	22.7	.000
- Unsatisfactory	83	75.5	11	10.0		
Mean ±SD	13.0+4.62		90.60+1.97			
Knowledge of BC incidence						
- Satisfactory	14	12.7	95	86.4	30.8	.000
- Unsatisfactory	96	87.3	15	13.6		
Mean ±SD	11.20+2.28		79.21+3.03			
Knowledge of risk factors						
- Satisfactory	28	25.5	105	95.5	11.43	.000
- Unsatisfactory	82	74.5	5	4.5		
Mean ±SD	12.60+4.43		82.13+2.74			
Knowledge of BC screening methods						
- Satisfactory	9	8.2	105	95.5	29.85	.000
- Unsatisfactory	101	91.8	5	4.5		
Mean ±SD	10.80+2.74		92.01+1.14			
Knowledge of BC prevention measures						
- Satisfactory	11	10.0	95	86.4	17.42	.000
- Unsatisfactory	99	90.0	15	13.6		
Mean ±SD	10.80+2.74		89.80+2.4			
Attitude toward BSE						
- Satisfactory	27	24.5	108	98.2	22.83	.000
- Unsatisfactory	83	75.5	2	1.8		
Mean ±SD	10.0+0.00		80.19+1.63			
Practice of BSE						
- Satisfactory	0	0	97	88.2	30.45	.000
- Unsatisfactory	50	100	13	11.8		
Mean ±SD	9.80+1.41		77.40+2.39			

Table (3): compares and contrasts of pre-post intervention scores of knowledge among study group, the majority of students preprogram have unsatisfactory knowledge compared with post program the majority get satisfactory knowledge. Moreover the table shows that there was a statistical significant difference at over all knowledge regarding breast cancer awareness among study sample before and after using of social media interacting group.

Figure (2) Comparison of Total Pre/Post Knowledge Mean Scores among Study Group

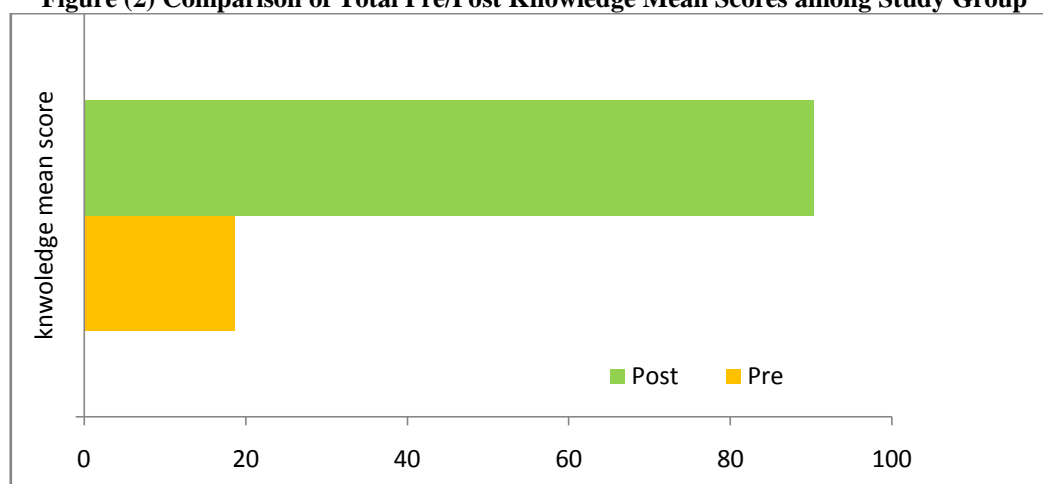


Figure (2) clarifies that the total mean scores of knowledge regarding BC is highly statistically significant differences between pre & post study) in Knowledge of BC definition, types, incidence, risk factors, screening methods, prevention measures, attitude toward BSE, and Practicing of BSE at $p=0.000$.

Table (4): Frequency Distribution of Students' Opinions Regarding Using of Social Methods (N=110).

Items	N	%
- Very interesting topic contains very important information.	110	100.0
- Content is very clear, specific, and useful	97	88.2
- Availability of teaching aids	102	92.7
- Very good explanation of the teacher	99	90.0
- Researcher is timely respond	88	80.0
- Interaction between researcher and students	98	89.1
- Possibility of referral and confirmation	60	54.5

N.B.: *More than one recommendations was offered by each student*

Table (4) lights on students' agreements about effectiveness of using social media in BC awareness. All of students 100.0% were very interested with the topic and importance of information. 92.7 % of students mentioned that the content is very clear, specific and useful. Concerning researcher, the majority of students appreciating researcher timely response and answers for their questions and answer fears satisfy with the interaction between them and Researcher (80.0%, 89.1%) respectively.

IV. Discussion:

Developing proper health practices should proceed as early as possible, and should lead to lifetime maintenance of good health. Adolescent females are an important target group for promotion of proper health customs, in particular with regards to breast health. Recently; advances in information technology and access have assured a new era in the dissemination of health information. The current study aimed at assessing effectiveness of using social media in awareness and early detection of breast cancer among female students at faculty of Nursing Bader University in Cairo.

Our study findings have shown warning information as; despite adolescents having about thirteen years of education, are ignorant of important knowledge and healthy practices in light of the spread of the dreaded disease, which they are afraid of even to called by its name; breast cancer. More over studies and foundations about breast cancer assured that early detection is very important to secure the women life which her life a worth for all family members and community.

The current research findings revealed that the majority of the study population had no formal or informal education regarding BC, as evidenced by their unsatisfactory knowledge about the incidence and risk factors of breast cancer. This may be partly attributed to the lack of an established healthcare data delivery

system in the rural areas. Knowledge about the incidence of breast cancer directly influences the care and attention taken to such health problems.

Concerning the socio- demographic characteristics of our study the mean age of the study sample was teenagers. And their educational level for the majority of them was secondary education and minority of them technical, which meant that our pre university schools programs missing health aspects and need to develop their curriculum to reflect on the health of specific high risk group. Moreover, about two third of the study were living in rural areas that also may refers to the unsatisfactory level of knowledge may be duo to in equality of health education programs in this areas as the researcher views.

The current study result consistent with () who revealed that the majority of the study population in her study of (Awareness and knowledge of breast cancer among university students in Al Madina Al Munawara Region) had no formal or health classes education for breast cancer, as evidenced by their inadequate level knowledge and frequency of misconceptions. And she pointed out that these reasons are due to lack of an established healthcare delivery and educational system in the region.

As concerns preprogram knowledge regarding BC is a highly statistically significant difference between pre & post study in knowledge of BC definition, types, incidence, risk factors, screening methods, prevention measures, attitude toward BSE, and Practicing of BSE compared by the post program and the mean scores was unsatisfactory level of knowledge before the intervention compared with satisfactory level after the intervention. This is due to the use of the communication group which has resulted in its importance in raising the awareness of the health of students.

The researcher supposedly that the use of social media and mobile phone is the most time spender among adolescent nowadays, and direction to use this current new beer is very important to improve condition of health in all aspects of adolescent not just in cancer breast. Although the leaflets, media, books, doctors and nurse are the majority sources of knowledge regarding breast care and assessment, the social media is becoming the most vital, accessible and timely offering health instructions.

The current study results in agreements with [22] that highlight on the use of social media as a new era in health education. He mentioned that information technology and access have assured a new era in the dissemination of health information. In the past, radio, television, and printed material (including posters, pamphlets, brochures, and magazines) were dominant techniques used in dissemination of health promotion classes. While these outlets continue to play a role, they are now thought to be less effective in reaching the public as more and more health information is accessed online.

Researcher found from the findings that teaching BSE can help student to learn about the structure and composition of their normal breasts, thereby enhancing their sensitivity to any abnormality as soon as it appears. But the nature of culture and beliefs of our rural areas it may be shameful techniques The study revealed that the using of communication group make easy to inform student with normally and abnormal breast figure without shaming and stress and interaction with teacher and colleagues with exchanging their ideas and background are leading to increase level of knowledge retention and increase level of awareness and practices. And make them able to check their breasts normally or not look and feel so they can report any new breast changes to a health professional as soon as they are found.

This finding is in line with a study done in Western New York [23], in which lower score is obtained on knowledge index in pre intervention and after education and interaction the orientation and awareness levels were increased and frequency of performing BSE among studied group was increased. Moreover, in a study done by in Nigeria [24] less than fifty of study group compared with two third of study group had good and categorized as having satisfactory knowledge after using what's App communication group.

As regards student opinions about effective use of social media in teaching such sensitive and important topics, the frequency of their responses revealed that the method was very effective as important topic, information, open timely discussion and interactions that make the method is very useful. The researcher find in the social media is considered a multi approaches in teaching strategies as; traditional by giving notes and lecture, open and one to one discussion, self-learning direction, beer group education as well as a new technology in health teaching. As well social media is facilitating to use and add a wide range of tools as figure, voice, notes, video books, contact numbers physician for referral and other internet link that make high statistical significant in the result of pre and post intervention.

This accepted by [25] whom assumed that message development for health promotion should account for user characteristics and target audience preferences for specific types of content and preferred technologies or tools [26]. As youth are some of the greediest users of social media, the development and availability of tailored content for this age group provides an opportunity to extend health promotion efforts. And he stressed on wide researches evidence regarding the impact and usefulness of social media and the evaluation of internet-based interventions directed at disease prevention and health behavior change to guide future initiatives.

V. Conclusions:

The current study accepted the research hypothesis of the using of social media will improve level of knowledge and awareness in early detection breast cancer among female students at faculty of Nursing Bader University in Cairo and the significance differences at $P=0.000$ between total mean scores of pre and post test.

VI. Recommendations:

On the highlight of the current study the researcher recommended that:

- Implementation for the study program for all university students especially non-medical students
- Pre university schools programs should involve health instructions and awareness of breast cancer.

Further studies:

- The foundations of breast cancer must reach to schools.
- Ministry of health and Education must be shared their programs and acting together to improve community health.
- Mammography is currently considered to be publicizing in the detection of early breast cancer among young age.
- Using of social media in all aspects of health should be proceeding under scientific regulations.

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