International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Index Copernicus Value (2013): 6.14 | Impact Factor (2013): 4.438

Factors Influencing Delayed Presentation of Breast Cancer among Saudi Women

Diala Altwalbeh[1], Mervat Ebrahim Aly El Dahshan[2,3], Ruba Yaseen[4]

[1]Taif University, College of Applied Medical Sciences, Nursing Department, Assistant Professor of Adult Health Nursing
Taif, Kingdome of Saudi Arabia

[2]Taif University, College of Applied Medical Sciences, Nursing Department, Assistant Professor of Nursing Management and Leadership
Taif, Kingdome of Saudi Arabia

[3]Menoufiya University, Faculty of Nursing, Department of Nursing Administration. Menoufiya, Egypt

[4]Taif University, College of Applied Medical Sciences, Nursing Department, Lecturer of Adult Health Nursing
Taif, Kingdome of Saudi Arabia

Abstract: ***Breast cancer is the most frequent diagnosed cancer among women worldwide; accounting for 25% (1.67 million) of the total new cancer cases diagnosed in 2012. At Kingdome of Saudi Arabia (KSA) Breast cancer ranked first among females cancers. Delayed presentation of breast cancer and the consequent delayed treatment are associated with negative breast cancer outcomes in terms of survival rate, advanced stages at diagnosis, bigger tumor size with positive lymph nodes. Although some factors associated with a delay in breast cancer care had been described in the literature, there is very little data about delay in breast cancer presentation among Saudi women who have unique cultural and socio-economic characteristics. The purpose of this study was to measure the length of patient delay time and to identify its influencing factors rather than system delay. A descriptive cross-sectional design was applied. Structured interviews have been conducted to collect the data from 56 Saudi women diagnosed with breast cancer. Result showed that 39.3% of women presented to physician within 12 weeks while 60.7% delayed more than 12 weeks. The mean of delay time was 15.1 week ±6.57 (range 0.14-27.14 weeks). This study revealed several reasons and barriers behind patient delay, and clarified the effect of several variables on longer delay time. The current study had some implications for research and practice. There is an urgent need for constructing a national program to overcome the difficulties and barriers faced by breast cancer patients.***

Keywords: breast cancer, delay, late, presentation, diagnosis

1. Introduction

Breast cancer is the most frequent diagnosed cancer among women worldwide; accounting for 25% (1.67 million) of the total new cancer cases diagnosed in 2012. It is the most common cancer in women both in more and less developed regions with slightly more cases in less developed (883,000 cases) than in more developed (794,000) regions. While it is the most frequent cause of cancer death in women in less developed regions (324,000 deaths, 14.3% of total), it is now the second cause of cancer death in more developed regions (198,000 deaths, 15.4%) after lung cancer [1]

Kingdome of Saudi Arabia (KSA) is not an exception; according to Saudi Cancer Registry (SCR) Breast cancer ranked first among females accounting for 27.4% (1473) of all newly diagnosed female cancers in the year 2010. The median age at diagnosis was 49 years (Range 21-120 years) [2]. Moreover, data on female patients with breast cancer reported from different regions in Saudi Arabia showed that most patients presented late with advanced stage [3-5]

Breast cancer survival rates vary greatly worldwide, ranging from 80% or over in high-income countries to below 40% in low-income countries. The low survival rates in less developed countries can be explained mainly by the lack of adequate diagnosis and treatment facilities as well as by the lack of early detection programs, resulting in a high proportion of women presenting with late-stage disease [6].

Early detection requires early diagnosis in symptomatic women and screening in asymptomatic women. American Cancer Society (ACS) guidelines for the early detection of breast cancer vary depending on a woman's age and include mammography and clinical breast examination (CBE), as well as magnetic resonance imaging (MRI) for women at high risk. Mammography should begin annually at age 40 with no specific age to stop. Clinical breast examination should be done every 1–3 years for women aged 20–39 years and annually for women aged 40 years and older, prior to mammography. Magnetic resonance imaging is recommended for women with a 20%–25% or higher lifetime risk for developing breast cancer. MRI should be performed annually beginning at age 30. Although the (ACS) no longer recommends that all women perform monthly breast self-exams (BSE), women should be informed about the potential benefits and limitations associated with BSE.[7].

Delay in treating breast cancer is broadly divided into two components; first: patient delay in seeking medical evaluation (the interval between first detection of symptom and first medical consultation); and second: delay in the diagnosis and treatment of breast cancer, so-called system delay (the interval between first presentation to a medical professional and initial treatment. Prolonged delay is usually defined as interval greater than 12 weeks, either in patient or system delay[8].

Data on the impact of delays in diagnosis on breast cancer

outcomes are varied. In a systematic review of 87 published studies of > 25000 women Richards and colleagues found that delay in breast cancer presentation of 12 to 26 weeks was shown to negatively reduce the five-year survival rate by 7% to 12%. The authors also found an association between longer duration of symptoms and advanced tumor stage [9]. On the other hand; in a more recent study, Love and colleagues did not observe statistically significant shorter survival in Asian women who experienced a delay of greater than 6 months between finding a lump and being diagnosed with breast cancer [10]. However, significant associations were found between delayed presentation and late stage of disease and bigger tumor size with positive lymph nodes [10-12]. In addition, late presentation of breast cancer has a significant economic impact, because it is far less expensive to treat patients with early-stage disease [13].

Several factors associated with a delay in breast cancer care have been described in the literature. In a systematic review done by Ramirez and colleagues to detect a predicting factors for delayed presentation of breast cancer, a strong association was found between older age and patients delay, in addition; moderate evidence was shown for several other factors (fewer years of education, nonwhite ethnic origin, presenting with breast symptoms other than a lump, not disclosing the breast symptom to another, and not attributing the breast symptom to breast cancer) [14].

The results of another systematic review done by Alhurishi and colleagues to identify the explanatory factors influencing delayed presentation of breast cancer in the Middle East showed that older age and lower educational level had strong effects in explaining delayed presentation. In addition; having no family history of breast cancer was found to have moderately effect on breast cancer delayed presentation [15].

In a recent multinational study conducted by Jassem and colleagues, a total number of 6588 female diagnosed with breast cancer from 12 countries (Bulgaria, Hungary, India, Latvia, Lithuania, Poland, Romania, Russia, Slovakia, Serbia, Turkey and Croatia) were surveyed to determine factors influencing patient and system-related delays. The results showed that the average patient-related delay time was 4.7 (range: 3.4–6.2) weeks. Longer patient-related delay times were associated with distrust and disregard, and shorter patient-related delay times were associated with fear of breast cancer, practicing self-examination, higher education level, being employed, having support from friends and family and living in big cities. The average system-related delay time was 11.1 (range: 8.3–24.7) weeks. Shorter system-related delay times were associated with cancer diagnosis made by an oncologist versus another physician, higher education level, older age, family history of female cancers and having a breast lump as the first cancer sign. [16]. However, subsequent studies have continued to come up with contradictory results [17].

So far there is very little data about delay in breast cancer presentation among Saudi women who have unique cultural and socio-economic characteristics. Accordingly, we conducted this study to measure the length of patient delay and to identify its influencing factors rather than system delay. Findings can be used to develop breast cancer educational/intervention programs to improve breast cancer detection and outcomes for women in KSA, e.g., to shorten the time that Saudi women wait to see a doctor after discovering breast symptoms. The ultimate aim is to improve breast cancer outcomes in KSA.

2. Method and Data Collection

2.1 Design

A descriptive cross-sectional design was applied. Structured interviews had been conducted to collect the data.

2.2 Setting

This study was conducted at private room at the outpatient clinics of a 2 major hospitals at the western region of KSA, mainly at Jeddah and Makkah cities.

2.3 Sample

Participants for this study were Saudi women diagnosed with breast cancer. A convenience sample of 100 women who were attending breast clinics between June and November 2014 in both hospitals and who met the following inclusion criteria; had a diagnosis of breast cancer, aged 18 years or older, and able to understand Arabic, were asked for a permission to participate in this study. Women who had a history of another cancer, or severe psychiatric illness were excluded. Only 80 women were willing to participate in the study; these women were asked to sign the documentation of informed consent. Before signing the consent form, the researchers explained the purpose, risks, benefits, and time commitment of the study to each potential participant in person. Twenty women were excluded later because they were not sure about the date of first symptom recognition or could not recall other important data. Four other women did not complete the whole interview because they were tired or had to leave due to some conditions. The final number was 56 women.

2.4 Tool for Data Collection

Data were collected using a structured interview technique using a standard questionnaire developed and filled by the researchers. The questionnaire divided into 3 parts; part one is the Sociodemographics and Clinical Data Sheet: (age, education level, monthly income, marital status, number of children, living area, place of residency, employment status before cancer diagnosis, having medical insurance to private sector, having a personal history of benign breast disease, having relatives or knowing others with breast cancer, and stage of breast cancer at diagnosis.) Part two: asked about the length of patient delay and its associated factors (date of first symptom recognition and first medical consultation (Patient delay is calculated as number of weeks between the 2 dates), method of problem detection, first suspicious symptom, patient's initial interpretations of symptom seriousness, reasons for waiting before seeking immediate medical consultation, patient's perceived barriers for reaching health

care providers, and finally patient's reasons for seeking medical consultation after waiting. Part three: asked about patient's knowledge and practices regarding breast cancer screening methods (BSE, CBE, and mammography).

2.5 Tool Validity

Tool was reviewed by a panel of five faculty members specialized in the field of oncology nursing, maternity nursing, medical surgical nursing, nursing administration and community health nursing to test both face and content validity, and to evaluate the appropriateness of questions to the Saudi culture. Modification was carried out according to the panel judgment on clarity of sentences and appropriateness of content.

2.6 Pilot Study

Pilot study was carried out on 10 women diagnosed with breast cancer to check clarity of items, identify any difficulties, determine the time required for the interview and decide the feasibility of the research.

3. Results

3.1 Socio Demographic and Clinical Characteristics:

The Socio demographic and clinical characteristics of the study sample (n = 56) are shown in Table 1. The mean age of women was 45.69 years± 6.48 (range 28–57 years), 48.2 percent were between the ages of 47-57 years. The mean number of years of education was 12.17 years ±4.87; illiterate women were only 10.7 percent. The average family monthly income was 10226 SR ± 6981 (range 3000-25000 SR). Eighty two percent of the sample lived in urban areas of the western region of KSA, mainly at Jeddah city (53.6%). Employed women percentage was 12.5. Fifty five percent of the sample were married for about 23.58 years ± 10.12 and had 4 children in average. Only 10.7 percent of the sample had medical insurance for private sector. Most of the sample (76.8%) did not have any previous personal history for breast disease. Seventy one percent of the sample had relatives or knew other women diagnosed with breast cancer. In this study 58.9 percent of the sample presented with late stages (stage 3 and stage 4), and 7.1 percent did not know their disease stage at first diagnosis.

Table 1: Percentage, Mean and Standard Deviation (SD) of Sociodemograghics and Clinical Characteristics of Participants. n = 56

	scitsitatS evitpircseD			
	Mean	*SD*	*Minimum*	*Maximum*
Age (years)	45.69	6.48	28	57
Education (years)	12.17	4.87	0	16
Monthly Income (SR)	10226	6981	3000	25000
Number of children	4.42	2.69	0	7
Marriage length (years)	23.58	10.12	0	37
		Frequency (n)		Percent (%)
Age				
25-35		4		7.1
36-46		25		44.6
47-57		27		48.2
Education (years)				
Illiterate		6		10.7
Elementary		7		12.5
Secondary		14		25.0
Higher education		29		51.8
Living area				
Urban		46		82.1
Rural		10		17.9
Place of residency				
Jeddah		30		53.6
Makkah		16		28.6
Taif		10		17.9
Employment status of participant				
Employed		7		12.5
Unemployed		49		87.5
Marital status				
Married		31		55.4
Not married (single, widowed, divorced)		25		44.6
Had medical insurance to private sector				
Yes		6		10.7
No		50		89.3
Had a personal history of any breast disease before				
Yes		13		23.2
No		43		76.8
Had relatives/ knew other women with breast cancer				
Yes		40		71.4
No		16		28.6
Stage of breast cancer at first diagnosis				
Early Stage (stage 1 & stage 2)		19		33.9
Late Stage (stage 3 & stage 4)		33		58.9
Did not know		4		7.1

3.2 Patient Delay

Patient delay is the dependent (outcome) variable in this study; it was defined as time intervals of more than 12 weeks from first symptom recognition to first medical consultation. Table (2) Result showed that 39.3% of women presented to physician within 12 weeks while 60.7% delayed more than 12 weeks. The mean of delay time was 15.1 week ±6.57 (range 0.14-27.14 weeks). Thirty nine percent of the women's sample detected breast cancer accidently by themselves, while 26.8 percent detected it during regular BSE, 14.3 percent detected it during CBE and only 8.9 percent detected it through regular mammography. The most frequent first suspicious symptom noted by 42.9 percent of the patients was a lump or thickened tissue of breast. In this study 57 percent of the patients did not considered the first detected symptom as a serious one. Patients mentioned many reasons for waiting before seeking medical evaluation after breast problem detection. The most frequent 5 reasons were; "lack of breast cancer knowledge (57.1%)", "thought symptoms will disappear by itself (55.4%)", "thoughts symptom is a normal part of life (53.6%)", "feeling no pain (46.4%)', and "embarrassment and shyness (44.6%).

In addition, patients stated some perceived barriers to reach health care providers. The most frequent 4 barriers were "the long waiting times for medical appointments (73.2%)", "lack

of female physicians/ technician (62.5%)", "lack of information of health care services (53.6%)" and "lack of sub-specialized facilities for breast diseases (41.1%)". Patients revealed many reasons for seeking a medical consultation after waiting. The most frequent 5 reasons were "persistence of symptom (71.4%) ", " afraid that breast symptom might be worse if left untreated (42.9%)", " curiosity to find out what the breast symptom was (21.4%)", " advice from family or social network (19.6%)", and "symptom became worse (16.1%)".

Table 2: Percentage, Mean And Standard Deviation (SD) Of Patient Delay and its Related Factors n= 56

	scitsitatS evitpircseD			
	Mean	*SD*	*Minimum*	*Maximum*
Patient delay (weeks)	15.1	6.57	0.14	27.14
Patient delay of more than 12 weeks				
Yes		34	60.7	
No		22	39.3	
Method of problem detection				
Accidentally by her self		22	39.3	
Breast self-examination		15	26.8	
Clinical breast examination		8	14.3	
Accidently by others (health care professionals or husband)		6	10.7	
Mammography		5	8.9	
First suspicious symptom				
A lump or area of thickened tissue in either breast		24	42.9	
A change in the size or shape of one, or both,breasts		6	10.7	
Lump or swelling in either armpit		5	8.9	
Dimpling of the breast skin		4	7.1	
Itching in the breast		4	7.1	
Pain in either breast or armpit that is not related to the menstrual period		3	5.4	
A discharge from either nipple (which may be streaked with blood)		3	5.4	
A change in the appearance of the nipple, such as becoming sunken into the breast		3	5.4	
Paresthesia of breast and/or ipsilateral arm		2	3.6	
Breast ulcers or sores		2	3.6	
Patient's initial interpretations of symptoms seriousness				
Serious		24	42.9	
Not serious		32	57.1	
***Reasons for waiting before seeking immediate medical consultation**				
Lack of breast cancer knowledge		32	57.1	
Thought symptoms will disappear by itself		31	55.4	
Thoughts symptom is a normal part of life		30	53.6	
Feeling no pain		26	46.4	
Embarrassment and shyness		25	44.6	
Using of alternative medicine		21	37.5	
Fear		20	35.7	
Looking after other family member / other role obligation		15	26.8	
Perceived low susceptibility of breast cancer		15	26.8	
Carelessness/neglect		12	21.4	
Short of money		10	17.9	
Other reasons		4	7.1	
***Patient's perceived barriers for reach health care provider**				
Perceived long waiting times for medical appointments		41	73.2	
Lack of female physicians/ technician		35	62.5	
Lack of information of health care services		30	53.6	
Most hospitals do not have sub-specialized facilities for breast diseases.		23	41.1	
Short of money		6	10.7	
Mistrust in physicians/ health care system		5	8.9	
***Patient's reasons for seeking a medical consultation after waiting**				
persistence of symptom		40	71.4	
Afraid that breast symptom might be worse if left untreated		24	42.9	
Curiosity to find out what the breast symptom was		12	21.4	
Advice from family or social network		11	19.6	
Symptom became worse		9	16.1	
Symptoms interfered with the habitual activities of the patient		8	14.3	
Other reasons		6	10.7	
*: Some women mentioned more than one answer.				

3.3 Patient's Knowledge and Practices Regarding Breast Cancer Screening Methods

Results on Table (3) showed that even 71.4 percent of the sample knew or heard about BSE only half of them (35.7%) used to perform it regularly. Data also showed that 39.3 percent of the sample knew or heard about CBE before but only 26.8 percent underwent CBE before having this problem. Regarding mammography; data showed that 17.9 percent of the sample knew or heard about it before but only 12.5 percent underwent mammography.

Table 3: Percentage of Patient's Knowledge and Practices Regarding Breast Cancer Screening Methods n = 56

	Frequency (n)	*Percent (%)*
Knew / heard about BSE before this problem		
Yes	40	71.4
No	16	28.6
Performed BSE before this problem		
Yes	20	35.7
No	36	64.3
Knew / heard about CBE before this problem		
Yes	22	39.3
No	34	60.7
Had CBE before this problem		
Yes	15	26.8
No	41	73.2
Knew / heard about mammography before		
Yes	10	17.9
No	46	82.1
Had a mammography done before this problem		
Yes	7	12.5
No	49	87.5

3.4 The Differences in the Patient's Delay Means of Selected Dichotomized Variables

T- test was used to assess the differences in patient's delay means of selected dichotomized variables. Table (4) showed that women who lived in rural areas had a significant longer delay time compared with those who lived in urban areas (t = 2.40, df = 54, p =.02). Employed women delay time was significantly longer than unemployed women (t = 3.43, df = 54, p =.00). Women who had a personal history of previous benign breast disease had a significant longer delay time (t = -2.42, df = 54, p =.02). Women who did not considered the first detected sing as a serious problem had significant longer delay time (t = 2.36, df = 54, p =.02). Women who knew about BSE before and used to perform it regularly had significant shorter delay time than those who did not (t = -3.13, df = 54, p =.00) and (t = -4.29, df = 54, p =.00) respectively. Women who heard about CBE and underwent it before had significant shorter delay time (t = -2.10, df = 54, p =.04) (t = -4.06, df = 54, p =.00) respectively. Women who knew about mammography and who underwent mammography before had significant lower delay time (t = -3.32, df = 54, p =.00) (t = -1.87, df = 54, p =.03) respectively.

Table 4: The Differences in the Patient's Delay Means of Selected Dichotomized Variables

Variables	*Mean*	*SD*	*t*	*Df*	*p*
Living area					
Urban	14.16	6.25	2.40	54	.02
Rural	19.45	6.531			
Employment status of participant					
Employed	22.4	3.23	3.43	54	.00
Unemployed	14.06	6.27			
Marital status					
Married	15.49	5.71	-0.48	54	.62
Not married (single, widowed, divorced)	14.62	7.59			
Having medical insurance to private sector					
Yes	17.83	3.22	1.07	54	.28
No	14.77	6.81			
Had a personal history of any benign breast disease before					
Yes	18.82	6.23	-2.42	54	.02
No	13.98	6.28			
Had relatives/ knew other women with breast cancer					
Yes	14.82	6.66	.50	54	.62
No	15.81	6.49			
Patient initial interpretations of symptom seriousness					
Serious	13.38	6.66	2.36	54	.02
Not serious	17.40	5.80			
Knew / heard about BSE before this problem					
Yes	13.25	5.14	-3.13	54	.00
No	18.30	6.22			
Performed BSE before this problem					
Yes	11.28	6.55	-4.29	54	.00
No	17.97	4.98			
Knew / heard about CBE before this problem					
Yes	13.91	4.23	-2.10	54	.04
No	16.52	4.73			
Had CBE before this problem					
Yes	10.74	5.52	-4.06	54	.00
No	17.72	5.76			
Knew / heard about mammography before					
Yes	12.84	6.43	-3.32	54	.00
No	18.88	4.92			
Had a mammography done before this problem					
Yes	11.87	6.10	-1.87	54	.03
No	16.63	5.24			

3.5 Relationships between Sociodemographics Variables and Patient Delay

Pearson product-moment correlation coefficient (r) was used to assess the relationship between patient delay time and sociodemographics variables that were measured in interval level. Results in table (5) showed that patient delayed time was significantly and positively correlated with age (r = 0.522, p < 0.01).

Table 5: The Relationships Between Sociodemographics Variables and Patient Delay

	1	2	3	4	5	6
1. Age (years)						
2. Education (years)						
3. Monthly Income (SR)						
4. Number of children						
5. Marriage length (years)						
6. Patient delay (week)	.522**	-.284	- .239,	.082	-.017	1
*: P < 0.05, **: P < 0.01						

4. Discussion

This section presents explanation of the main findings of the current study; particularly the length of patient's related delay time and the factors influencing this delay.

4.1 Length of Patient's Related Delay

In this study the average of Saudi patient delay time was 15.1 weeks. It is longer than that reported by Jassem and colleagues which was only 4.7 weeks [16] and other studies conducted at developed countries which was between 2 and 8.7 weeks [18, 19].

In this study a delay of more than 12 weeks prior to physician consultation occurred in 60.7 % of cases. It is a greater percent than that reported by other studies which was between 14% and 53% [20, 21]. These findings can be explained by several reasons and factors mentioned by patients themselves as discussed below.

4.2 Reasons for patient delay

The most frequent reason for patient delay was the lack of breast cancer knowledge. This finding is consistent with other studies conducted in different region in KSA which revealed low levels of knowledge about breast cancer, its risk factors, and screening tools. All of these studies were performed on healthy women who were not diagnosed by breast cancer. In addition most of these studies used homogeneous groups like students, teachers, nurses, or other healthcare providers [22-29]. The major source for breast cancer knowledge according to these studies was the media (television, radio, printed materials in journals and newspapers) followed by physicians and relatives. This lack of knowledge is a major field for health care providers especially nurses to intervene to raise the general awareness regarding breast cancer.

Other common reasons were; " thoughts symptom will disappeared by itself" or "thoughts it is a normal aging process" and feeling no pain. These findings can be explained by the nature of the most frequent suspicious symptom detected by women which was the lump of the breast; most of the time this lump is not painful and could be falsely interpreted as a normal part of life that will disappeared by itself. Embarrassment and shyness as a reason for delay was mentioned by 44.6 percent of the study sample. This finding was consistent with other Saudi studies [22, 30] and it can be explained by the conservative nature of the community; embarrassment and shyness may prevent the woman from seeking medical advice until their disease become on advance stages [31].

Patients also stated some barriers prevented them from reaching health care provider in earlier time; the most frequent barrier mentioned by 73.2 percent of patient was the perceived long waiting times for medical appointments. This finding was consistent with Abdelhadi findings which showed that breast cancer patients spent 6-15 weeks and around 32-38 hand offs before receiving the final care [32]. Abdelhadi argued that this unnecessary system delay creates anxiety and mistrust of the operating health system leading patients to seek alternative medicine or treatment abroad.

In the current study; 62.5 percent of the women pointed to the lack of female physicians and technician as an important barrier for them to reach health care facilities. This finding was consistent with other Saudi studies (Amin et al., 2009; Akhtar et al., 2010). This finding can be explained by the modesty and embarrassment among Muslim women which might prevent some women from having their breast examined by male physician or technician. However, religious guidelines allow Muslims to have their bodies examined by health care professionals for medical reasons [33].

Lack of information about health care services and the lack of sub-specialized facilities for breast disease were mentioned by 53.6 and 41.1 percent of the sample respectively. This finding reflect the need for raising public awareness regarding the services provided by all health care sectors at KSA and to create more specialized breast facilities.

4.3 Patient's knowledge and practices regarding breast cancer screening methods.

The current study revealed low level of awareness and underutilization of the available breast cancer screening methods. This finding is consistent with other Saudi studies [22-27, 30].

4.4 The Differences in the Patient's Delay Means of Selected Dichotomized Variables

This study showed that delay time was longer among women who lived in rural areas. This finding is consistent with Jassem's findings [16] and might be explained by the availability of essential resources necessary for early detection and early treatment of breast cancer at the urban areas.

In contrast to Jassem findings[16], employed women at this study had significantly longer delay time compared to unemployed women. There are several possible explanations for this result. For example employed woman might face difficulties in leaving work to do the necessary screening activities. In addition working outside left insufficient time to attend screening centers.

Interestingly; this study revealed that the delay time for women who had a personal history of benign breast disease

was longer compared to women with no personal history of breast disease. This finding might be explained by the effect of the previous experiences of these women, they might thinking that the new breast symptom they discovered was just a breast cyst or a benign symptom; so they waited until the symptom became worse before seeking a medical evaluation.

The result of the current study showed that women who perceived the first breast symptom as not serious had a significant longer delay time. This finding is consistent with the results of the Western studies [34]. As expected women who heard or knew about breast cancer screening methods and women who used to practice BSE and underwent CBE and mammography had shorter delay time.

4.5 Relationships between Sociodemographic Variables and Patient Delay

The results showed a significant moderate relationship between age and patient delay. That is older women waited for longer periods of time before seeking medical advice. This finding is consistent with several studies [15, 20, 35].

5. Implications

More integral study of delayed presentation of breast cancer, that takes into account health services factors (system delay) should be done, in order to identify specific factors toward which interventions should be directed. In addition, there is an urgent need for constructing a national program with clear guidelines which focuses on: 1. raising breast cancer awareness among public, 2. Educate health care providers about their roles in encouraging women for screening and early detection, 3. Increase the number of specialized breast cancer clinics all over the Kingdome and occupied them by female physicians and technicians.

6. Conclusion

To our knowledge, this is the first study that attempts to measure the length of patient delay and to identify its influencing factors. In this study, total 56 of Saudi women were interviewed using a structured interview technique. Results showed that 60.7 %of the sample was delayed. The mean of delay time was 15.1 week ±6.57 (range 0.14-27.14 weeks). This study revealed several reasons and barriers behind patient delay, and clarify the effect of selected variables on longer delay time. The current study has some implications for research, education, and practice.

7. Limitation

Some limitations need to be considered. For instance, the limited number of participants, in addition to the non-probability convenience sampling technique. Also, data were collected from self-reported interviews, which might be affected by social-desirability response bias. So it is difficult to generalize the results of this study to all Saudi women diagnosed with breast cancer.

8. Acknowledgment

The researchers acknowledge the valuable efforts of RN: Majda Rashed Khairi and RN: Shatha Salem Al.Lhyani during sample recruitment phase.

References

[1] Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray, F. GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC Cancer Base No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available from: http://globocan.iarc.fr, accessed on 15/November/2013.

[2] Saudi Cancer Registry. *Cancer Incidence Repor Saudi Arabia 2010*. (2014) [cited 2014 October, 21]; Available from: http://www.scr.org.sa/files/file/2010.pdf.

[3] Ibrahim, E., et al., *The present and the future of breast cancer burden in the Kingdom of Saudi Arabia.* Medical Oncology, 2008. **25**(4): p. 387-393.

[4] Chiedozi, L.C., I.A. El-Hag, and S.M. Kollur, *Breast diseases in the Northern region of Saudi Arabia*. Saudi medical journal, 2003. **24**(6): p. 623-627.

[5] Ezzat, A., et al., *A phase II trial of circadian-timed paclitaxel and cisplatin therapy in metastatic breast cancer.* Annals of oncology, 1997. **8**(7): p. 663-667.

[6] Coleman, M.P., et al., *Cancer survival in five continents: a worldwide population-based study (CONCORD).* The lancet oncology, 2008. **9**(8): p. 730-756.

[7] American Cancer Society (2013). *Breast Cancer Facts & Figures 2013-2014.* Atlanta: American Cancer Society: Inc. 2013

[8] Burgess, C.C., et al., *Who and what influences delayed presentation in breast cancer?* Br J Cancer, 1998. **77**(8): p. 1343-8.

[9] Richards, M., et al., *Influence of delay on survival in patients with breast cancer: a systematic review.* The Lancet, 1999. **353**(9159): p. 1119-1126.

[10] Love, R.R., et al., *Duration of signs and survival in premenopausal women with breast cancer.* Breast Cancer Res Treat, 2004. **86**(2): p. 117-24.

[11] Montazeri, A., et al., *Delayed presentation in breast cancer: a study in Iranian women.* BMC women's health, 2003. **3**(1): p. 4.

[12] Ermiah, E., et al., *Diagnosis delay in Libyan female breast cancer.* BMC research notes, 2012. **5**(1): p. 452.

[13] Yau, T., et al., *Delayed presentation of symptomatic breast cancers in Hong Kong: experience in a public cancer centre.* Hong Kong Med J, 2010. **16**(5): p. 373-7.

[14] Ramirez, A.J., et al., *Factors predicting delayed presentation of symptomatic breast cancer: a systematic review.* Lancet, 1999. **353**(9159): p. 1127-31.

[15] Alhurishi, S., et al., *Factors influencing late presentation for breast cancer in the middle East: a systematic review.* Asian Pac J Cancer Prev, 2011. **12**(6): p. 1597-1600.

[16] Jassem, J., et al., *Delays in diagnosis and treatment of breast cancer: a multinational analysis.* The European Journal of Public Health, 2013. **24**(5): p. 7.
[17] Unger-Saldaña, K. and C. Infante-Castañeda, *Delay of medical care for symptomatic breast cancer: A literature review.* salud pública de méxico, 2009. **51**: p. s270-s285.
[18] Arndt, V., et al., *Patient delay and stage of diagnosis among breast cancer patients in Germany–a population based study.* British journal of cancer, 2002. **86**(7): p. 1034-1040.
[19] Meechan, G., J. Collins, and K.J. Petrie, *The relationship of symptoms and psychological factors to delay in seeking medical care for breast symptoms.* Preventive medicine, 2003. **36**(3): p. 374-378.
[20] Bish, A., et al., *Understanding why women delay in seeking help for breast cancer symptoms.* Journal of psychosomatic research, 2005. **58**(4): p. 321-326.
[21] Jenner, D., et al., *In-hospital delay in the diagnosis of breast cancer.* British journal of surgery, 2000. **87**(7): p. 914-919.
[22] Amin, T.T., A. Al Mulhim, and A. Al Meqihwi, *Breast cancer knowledge, risk factors and screening among adult Saudi women in a primary health care setting.* Asian Pac J Cancer Prev, 2009. **10**(1): p. 133-8.
[23] Radi, S.M., *Breast cancer awareness among Saudi females in Jeddah.* Asian Pacific Journal of Cancer Prevention, 2013. **14**(7): p. 4307-4312.
[24] Habib, F., et al., *Awareness and knowledge of breast cancer among university students in Al Madina Al Munawara Region.* Middle East Journal of Cancer, 2010. **1**(4): p. 159-166.
[25] Dandash, K.F. and A. Al-Mohaimeed, *Knowledge, attitudes, and practices surrounding breast cancer and screening in female teachers of Buraidah, Saudi Arabia.* International journal of health sciences, 2007. **1**(1): p. 61.
[26] Jahan, S., A.M. Al-Saigul, and M.H. Abdelgadir, *Breast cancer. Knowledge, attitudes and practices of breast self examination among women in Qassim region of Saudi Arabia.* Saudi medical journal, 2006. **27**(11): p. 1737-1741.
[27] Ravichandran, K., N.A. Al-Hamdan, and G. Mohamed, *Knowledge, attitude, and behavior among Saudis toward cancer preventive practice.* Journal of Family and Community Medicine, 2011. **18**(3): p. 135.
[28] Yousuf, S.A., et al., *Do Saudi nurses in primary health care centres have breast cancer knowledge to promote breast cancer awareness.* Asian Pacific Journal of Cancer Prevention, 2012. **13**(9): p. 4459-4464.
[29] Al-Amoudi, S.M., W.A. Sait, and H.S. Abduljabbar, *Health care provider's role in facing the future burden of breast cancer in Saudi.* Saudi medical journal, 2010. **31**(12): p. 1359-1362.
[30] Akhtar, S., et al., *First organized screening mammography programme in Saudi Arabia: preliminary analysis of pilot round.* EMHJ, 2010. **16**(10).
[31] Mahfouz, A.A., et al., *Breast Cancer Knowledge and Related Behaviors among Women in Abha City, Southwestern Saudi Arabia.* Journal of Cancer Education, 2013. **28**(3): p. 516-520.
[32] Abdelhadi, M.S., *Breast cancer management delay-time for improvement: A reflection from the eastern province of Saudi Arabia.* Journal of family & community medicine, 2008. **15**(3): p. 117.
[33] Salman, K.F., *Health beliefs and practices related to cancer screening among Arab Muslim women in an urban community.* Health care for women international, 2012. **33**(1): p. 45-74.
[34] Facione, N.C., C. Giancarlo, and L. Chan, *Perceived risk and help-seeking behavior for breast cancer: a Chinese-American perspective.* Cancer Nursing, 2000. **23**(4): p. 258-267.
[35] Ramirez, A., et al., *Factors predicting delayed presentation of symptomatic breast cancer: a systematic review.* The Lancet, 1999. **353**(9159): p. 1127-1131.