

A Cross-Cultural Comparison Between Cypriot and Egyptian Women, on Their Perceptions of Breast Self-Examination as a Screening Method for Breast Cancer

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Abstract: Breast cancer is the leading cause of death among Cypriot and Egyptian women. When breast self-examination (BSE) is done regularly, it can be an effective method for early detection. The aim of this research was to compare the beliefs and practices of BSE between Cypriot and Egyptian women, using independent samples of women from the two countries. A cross-sectional, descriptive, correlational design was used, with a pre-coded self-administered questionnaire. The final sample included 354 Cypriot and 400 Egyptian women. The Greek and Arabic versions of Champion's Health Belief Model (CHBM) were used as tools for this study. Results revealed that about 65% of Cypriot women had practiced BSE at least once in the past, as opposed to a significantly lower percentage (about 35%) for Egyptian women ($p < 0.001$). Descriptive statistics were obtained for the six subscales of the CHBM and it was found that the highest mean was for "Motivation" (3.9 for Cypriots and 3.5 for Egyptians), while the lowest mean was for Barriers (2.1 for Cypriots and 2.5 for Egyptians). The results also showed that two variables, age ($p < 0.001$) and personal history of breast cancer ($p < 0.001$) significantly affected the performance of BSE for all the women in the study sample. In conclusion, this study has shown that there were many differences between Cypriot and Egyptian women in relation to their perceptions regarding the practice of BSE. These differences could be attributed to cultural factors, especially those related to Barriers on behalf of Egyptian women. Recommendations of this study include emphasis on the importance of BSE education, maximization of the role of health care providers in training of women on BSE and finally, well-designed awareness programs must be adapted according to culture and special characteristics of women.

Key words: Breast Self-Examination • Breast Cancer • Health Belief Model • Cyprus • Egypt

INTRODUCTION

Breast cancer is the most common malignancy affecting women worldwide and one of the main causes of death among women in North America [1] and Europe [2]. Breast cancer is the leading cancer among Cypriot women, with approximately 350-400 new cases diagnosed annually [3]. Several countries in the Middle East, such as Jordan, Egypt, Lebanon and Bahrain, have also reported a high prevalence of breast cancer and high mortality rates among women [4, 5]. Breast cancer accounts for 37.6% of all reported cancers among Egyptian women and most cases occur between 30-60 years of age [6]. Breast cancer contributes to a high rate of death among women

worldwide [7]. It has been estimated that one out of every nine women living in western countries is likely to be afflicted by breast cancer in her lifetime [8].

Empirical evidence in literature suggests that early detection of breast lumps and early treatment of breast cancer are associated with better survival rates. The European Union's recommendations include one mammography screening every 2-to-3 years for women aged 50 and above [9,10]. Breast self-examination (BSE) is another screening method that can be done by the woman herself at no cost. It is a practice that has been found to help the woman herself discover any breast lump early enough to be cured [11]. The effect of BSE on early detection of breast lumps has been investigated in many

trials, which have shown that, when BSE is done regularly, it can be an effective means of early detection of breast cancer [12].

Theoretically, a 95% survival rate could be achieved if breast cancer was diagnosed at an early stage. Breast self exam (BSE), mammography and clinical breast examination are considered as screening methods for early detection of breast cancer. A woman who performs regular BSE may be more motivated to seek medical attention, including mammography and clinical breast exams if available [13].

A woman's decision to practice BSE for cancer screening relies on contextual factors as well as personal factors, including knowledge, attitudes and beliefs. The Health Belief Model (HBM) supports the assumption that one's perception of a presumed threat relating to one's health influences one's health-related behavior [14]. Champion [15, 16] used the HBM in relation to breast cancer and BSE. According to the HBM, a woman who perceives that she may be susceptible to breast cancer, who perceives breast cancer as a serious disease, sees the benefits of performing BSE, encounters few barriers or is motivated and concerned about her health, is more likely to practice BSE and on a regular basis.

In Cyprus, a study was conducted by Petro-Nustas, Tsangari, Phellas and Constantinou [17], to examine the factors influencing screening for breast cancer using BSE practice for Cypriot women. In Egypt, a study was conducted on 367 women who were asked about the most common two reasons for not doing breast self-examination; denial of their susceptibility to breast cancer and fear from discovering that they have breast cancer [18].

The current study aims to compare the beliefs and reported practice of BSE between Cypriot and Egyptian women, using independent samples of women from the two countries. The results of this research aim to bring new information on the use of BSE as a method of effective screening and identify any cultural differences that might exist.

Theoretical Framework: The Health Belief Model (HBM) is the conceptual framework of the study. The original model's components [19] were: (1) perceived susceptibility to illness, which is a powerful perception in prompting people to adopt healthier behaviors (2) perceived seriousness of the illness, which is either based on medical information, or it comes from beliefs about the

effect the disease would have on the person's life, (3) perceived benefits of the intended action. These are a person's opinion of the value of a new behavior in decreasing the risk of developing a disease and play an important role in the adoption of prevention behaviors, like screenings [20] and (4) perceived barriers of the intended action, which are a person's evaluation of the obstacles in the way of adopting a new behavior. The barriers to performing BSE often exert a greater influence over the behavior than does the threat of cancer itself [16, 21 and 23]. Later, Rosenstock, Stretcher and Becker [23], added two more concepts: (5) confidence or self-efficacy, which is the belief in one's own ability to do something and (6) health motivation, which is the individual's beliefs and degree of interest in one's general health and is a characteristic that acts as a modifying factor and may influence personal perceptions. In addition to the aforementioned perceptions, the HBM suggests that behavior is also influenced by cues to action and demographics (e.g., family history of the disease, education, culture, past experience and skill) [24].

Champion's HBM [15, 16] has been widely utilized by several researchers, to guide research on women's beliefs and practices concerning the screening methods for breast cancer, where certain constructs of the HBM have been confirmed to predict early detection practices (25,26,27,28). The Champion's HBM (CHBM) tool has been translated, tested and used among women of various cultures [29-35].

The current study will use CHBM to compare two groups of women that have different cultures, in order to see if the perceptions and behaviors in relation to BSE are different between Cypriot and Egyptian women.

MATERIALS AND METHODS

Design and Sample: A cross-sectional, descriptive, correlational design was used, with a pre-coded self-administered questionnaire. The study sample consisted of 354 Cypriot and 400 Egyptian women, including university students and employees, with various socio-economic characteristics. The questionnaire required 15-20 minutes to complete. Respondents were asked not to write their names on the questionnaire, ensuring their anonymity, oral informed consent was obtained from each participant and participation in the study was voluntary.

Measures: The Greek and Arabic versions of the revised Champion's Health Belief Model Scale Champion [16] were used respectively as the research tools of this study. The psychometric properties of the Greek version, including reliability, construct and predictive validity of the tool had been evaluated and found satisfactory in a study of Cypriot (Greek-speaking) women, by Tsangari and Petro-Nustas [35]. Similarly the Arabic version was tested for validity and reliability in Mikhail and Petro-Nustas [4].

The tool consists of 42 items, grouped in six subscales as follows: Susceptibility (five items); seriousness (seven items); benefits (six items); barriers (six items); motivation (seven items) and confidence (11 items). A 5-point Likert Scale format, coded from 1 (strongly disagree) to 5 (strongly agree), was used for all items. The questionnaire in the current study, additionally, included items to assess demographic characteristics and cues to action.

Data Analysis: Descriptive statistics of the sample's characteristics were provided. The six subscales of CHBM were created based on the responses of the participants on the corresponding items. The average responses to the items on the six scales, along with overall mean and standard deviation of each subscale were calculated. Various statistical tests (independent samples t-tests, chi-square tests and multiple regression analysis) were used for statistical comparisons between the two countries, to identify significant differences in perceptions and reported practices. The data were analyzed using the Statistical Package for Social Sciences (SPSS), version 19.0.

RESULTS

Demographics, Family History and Knowledge about Breast Cancer: As revealed in Table (1): the mean age of the sample of 354 Cypriot women was 30.1 years (SD=9.9), ranging from 16 to 57 years. For the 400 Egyptian women, the mean age was 36.7 years (SD=9.0), ranging from 20 to 57 years. Most of the women (70.7% for Cypriots and 49.3% for Egyptians) had a University degree, followed by a two-year diploma (13.6% for Cypriots and 35% for Egyptians) and high school or lower education (10.5% for Cypriots and 8.8% for Egyptians). Regarding their marital status, 55% of Cypriots were single, followed by 35.6% married and 6.3% divorced. The majority of Egyptians

(72.5%) were married, followed by 22.5% single and 5% divorced. A total of 25.2% of Cypriot women and 18.8% of Egyptian women had a family history of breast cancer, while 3.7% of Cypriots and 8.3% of Egyptians reported a personal history of breast cancer. About 54% of Cypriot women and 84% of Egyptian women were covered by a Health Insurance Plan. Almost all Cypriot women (94.4%) had heard about breast tumours, compared to a corresponding 85.2% for Egyptian women.

Comparative Results for Reported Practice and Intention to Practice BSE: As revealed in Table (2): Chi-square tests were used to compare reported practice of BSE and intention to practice BSE, for Cypriot and Egyptian women. Most of Cypriot women (89%) had heard about BSE. The proportion was significantly lower for Egyptian women (74%), with $p\text{-value} < 0.001$. About 65% of Cypriot women reported that they performed BSE at least once in the past, as opposed to a significantly lower percentage (35%) for Egyptian women ($p < 0.001$). However, for those who had performed BSE in the previous year, the frequency of reported practice was similar between Cypriot and Egyptian women ($p = 0.081$). For both groups, the highest proportion of women reported that they had practiced it only once, followed by practice on a monthly basis. For those women who reported that they do not currently practice BSE, it was shown that, similarly for Cypriots and Egyptians, the majority intends to try it next year (62% of Cypriots and 65% of Egyptians).

Comparative statistics for the six subscales of HBM: Table (3) shows that the reliability of each of the six subscales in the current study was measured using Cronbach's alpha and was satisfactory for both groups, slightly higher for the Egyptian sample, ranging from 0.63 to 0.90 for Cypriot women and from 0.79 to 0.91 for Egyptian women. For both groups, the lowest reliability was for the subscale "Health Motivation", with a higher coefficient for the Egyptian group. The reliability coefficients were similar to those in Champion's (1993) original version, as well as to the Arabic and Greek versions, respectively, of previous studies (e.g., Mikhail and Petro-Nustas, 2001; Tsangari and Petro-Nustas, 2012) [4, 35].

Descriptive statistics were obtained for the six subscales, while independent samples t-tests identified significant differences (Table 3). Results showed that for both groups the highest mean was for "motivation"

Table 1: Demographic characteristics, family history and knowledge about breast cancer and BSE among Egyptian and Cypriot women

		Cyprus (N=354)		Egypt (N=400)	
		n	%	n	%
Education	HighSchool or lower	37	10.5	35	8.7
	2-year diploma	48	13.6	140	35.0
	Universitydegree	249	70.7	197	49.3
	Other	20	5.2	28	7.0
Marital Status	Single	193	55.0	90	22.5
	Married	125	35.7	290	72.5
	Divorced	22	6.4	20	5.0
	Other	14	3.9	0	0
Family history of breast cancer		89	25.2	75	18.9
	Mother	16	18.0	18	24.0
	Aunt (mother's sister)	27	30.2	17	22.8
	Cousin (mother's side)	7	7.9	8	6.0
	Sister	4	0.5	21	28.0
	Grandmother (mother's)	16	18.0	4	5.3
	Other	19	21.2	9	12.0
Personal diagnosis of breast cancer		13	3.7	33	8.3
Health insurance coverage		191	54.0	336	84.0
Heard/Read about breast cancer		334	94.4	341	85.2

Table 2: Comparative results between Cyprus and Egypt, regarding practice and intention to practice BSE

	Cyprus (N=354)		Egypt (N=400)		Chi-square	p-value
	n	%	N	%		
Heard about BSE	315	89.0	297	74.3	26.667	<0.001
Done BSE in previous year	231	65.3	141	35.3	67.638	<0.001
Frequency of BSE in previous year:					6.731	0.081
Once	60	26.0	49	34.8		
Every 6 months	46	19.9	22	15.6		
Every 2-3 months	57	24.7	22	15.6		
Every month	56	24.2	28	19.9		
Other/ NA	12	5.2	20	14.1		
Intend to perform BSE next year (if not done last year)	126	62.1	228	65.3	0.593	0.441

Table 3: Reliability coefficients and comparative statistics for the six subscales of HBM, for Cypriot and Egyptian women.

HBM Subscale	Cyprus				Egypt				p-value
	Items	Alpha	Mean	SD	Alpha	Mean	SD	t	
Susceptibility	5	0.90	2.7	0.8	0.89	2.8	0.7	-1.61	0.108
Seriousness	7	0.80	3.4	0.7	0.84	3.4	0.7	-0.59	0.557
Benefits	6	0.81	3.7	0.6	0.89	3.4	0.8	5.89	<0.001
Barriers	6	0.82	2.1	0.6	0.89	2.5	0.7	-7.98	<0.001
Confidence	11	0.88	3.2	0.6	0.91	2.7	0.7	9.51	<0.001
Motivation	7	0.63	3.9	0.5	0.79	3.5	0.6	9.93	<0.001

(3.9 for Cypriots and 3.5 for Egyptians), indicating that women cared about maintaining good health and thus were motivated to perform BSE to discover any health problem early. The lowest mean was for both groups for barriers (2.1 for Cypriots and 2.5 for Egyptians). The low mean shows that the respondents tended to disagree that there were any barriers which would prevent them from performing BSE.

The results showed that there were significant differences in the subscales: Benefits, Barriers, Confidence and Motivation. More specifically, Cypriot women had a higher perception of the benefits of BSE ($p<0.001$) compared to Egyptians, believing stronger that it could help them find lumps early and increase their chances of surviving. Cypriot women also had a lower level of barriers in performing BSE ($p<0.001$).

Further examination regarding barriers, by looking at individual items of this subscale, showed that 20% of Egyptian women felt that “BSE is embarrassing”, compared to 3% of Cypriot women. Moreover, 17% of Egyptian women felt that they “have no privacy to perform BSE”, compared to 3% for Cypriot women. Additional results showed that Cypriot women had a significantly higher level of confidence in performing BSE correctly to find a breast lump, compared to Egyptian women ($p<0.001$). Finally, Cypriot women were more motivated compared to Egyptians ($p<0.001$), with significant differences in almost all items of this subscale, including “motivation to discover health problems early”, “maintain good health”, “carry out activities that improve their health”, “eat well-balanced meals” and “have regular health check-ups”.

Comparative Results for the Relationship Between Health Beliefs and BSE Behavior: To examine BSE performance in relation to beliefs, the frequency of BSE reported practice in the previous year was regressed on the 6 subscales of the HBM, using multiple regression analysis, with the dummy variable “country” (Cyprus=0, Egypt=1) together with the corresponding interaction terms of “country” with the six subscales, to examine for differences between Cypriot and Egyptian women (Table 3).

Two subscales: barriers ($p\text{-value}<0.001$) and confidence ($p\text{-value}<0.001$) significantly affected the performance of BSE for the 754 sample women. Perception of the existence of barriers was associated with lower frequency ($b= -0.688$) and confidence in the ability to practice BSE with higher frequency of performing BSE ($b=1.063$). In addition, the significance of three interaction terms (country with confidence, seriousness and susceptibility) shows that there were differences between the women in the two countries in terms of the effect of HBM perceptions on the frequency of performing BSE.

More specifically, the negative coefficient ($b= -0.615$) of the interaction of “confidence” with country, in combination with the positive coefficient of “confidence”, shows that the effect of perceptions of confidence is lower for Egyptian women compared to Cypriot women. This means that for Egyptian women being “confident” increases the frequency of BSE performance at a lower degree, it is not as significant as for Cypriots.

Although the effect of susceptibility to breast cancer was not found to be significant ($p\text{-value}=0.09$), its interaction with country was significant ($p\text{-value}=0.04$).

This shows that the effect of perceptions of susceptibility on BSE performance depends on the country: the positive ($b=0.252$) interaction coefficient and the positive (insignificant) coefficient of susceptibility, show that the effect of perceptions of susceptibility is higher for Egyptian women. This means that, for Egyptian women, feeling that they are likely that they will get breast cancer increases their frequency of BSE performance compared to Cypriots. Finally, although the subscale “seriousness” was not found to significantly affect BSE performance ($p\text{-value}=0.44$), its interaction with country was found to be significant ($b=0.332$, $p\text{-value}=0.01$), showing that effect of “seriousness” is country bound. The positive interaction coefficient, in combination with the positive (insignificant) main effect, show that the effect of perceptions of seriousness of breast cancer is higher for Egyptian women. This means that, for Egyptian women, being afraid that breast cancer will affect their lives increases their frequency of BSE performance compared to Cypriots. All the variables together explained 40% of the variation in frequency of BSE performance.

Comparative results for the relationship between demographics and cues to action with “frequency of BSE reported practice in the previous year”

Multiple regression analysis investigated the impact of all the demographic variables and cues to action on the frequency of BSE reported practice in the previous year. The demographic variables that were considered were age, education, marital status, personal and family history of breast cancer and health insurance (Table 4).

The results showed that two variables, age ($p<0.001$) and personal history of breast cancer ($p<0.001$) significantly affected the performance of BSE for all the sample women. The positive coefficient of age ($b=0.049$) shows that older women appear to perform BSE more frequently compared to younger women, while the negative coefficient of personal history ($b=-1.525$), shows that women that were diagnosed with breast cancer had a lower frequency of BSE.

In addition, there were significant differences between women in the two countries in relation to personal characteristics, since four interaction terms were found statistically significant (country with age, education, marital status and family history of breast cancer). The negative coefficient ($b=-0.049$) of the interaction of age with country, shows that the effect of age is lower for Egyptian women compared to Cypriot women or that for older Egyptian women the frequency of BSE increases at a lower degree compared to older

Table 4: Multivariate Regression Results for the effect of HBM subscales on the frequency of BSE performance

Variables	Beta	t	p-value
Susceptibility	0.45	1.697	0.090
Seriousness	-0.074	-0.774	0.439
Benefits	-0.015	-0.136	0.892
Barriers	-0.688	-6.620	<0.001*
Confidence	1.063	9.571	<0.001*
Motivation	0.062	0.438	0.662
Susceptibility x Country	0.252	2.054	0.040*
Seriousness x Country	0.332	2.557	0.011*
Benefits x Country	0.122	0.821	0.412
Barriers x Country	0.265	1.916	0.056
Confidence x Country	-0.503	-3.441	0.001*
Motivation x Country	-0.136	-0.781	0.435
Country	-1.137	-1.308	0.191
R ² =0.401			
Adjusted R ² =0.389			

* Variable is statistically significant at the 5% level of significance

Table 5: Multivariate Regression Results for the effect of demographics and cues to action on the frequency of BSE reported practice

Variable	Beta	t	p-value
Age	0.049	1.371	<0.001*
Education	0.151	1.053	0.171
Marital status	0.223	1.053	0.293
Family history of breast cancer	-0.012	-0.068	0.946
Personal history of breast cancer	-1.525	-3.772	<0.001*
Health insurance	0.111	0.744	0.457
Country	2.467	1.976	0.049*
Age x country	-0.049	-3.454	0.001*
Education x country	0.310	2.030	0.043*
Marital status x country	-0.638	-2.248	0.025*
Family history x country	-0.759	-2.913	0.004*
Personal history x country	-0.009	-0.019	0.985
Insurance x country	-0.158	-0.649	0.517
R ² =0.281			
Adjusted R ² =0.265			

* Variable is statistically significant at the 5% level of significance

Cypriot women. In fact, age was not a significant factor for Egyptian's BSE performance. Although the effect of education was not found to be significant (p-value=0.17), its interaction with country was found to be significant (p-value=0.04), showing that the effect of educational level on BSE performance depends on country. The positive (b=0.310) interaction coefficient and the positive (insignificant) effect of education, show that the effect of education is higher for Egyptian women. In other words, Egyptian women with a higher

educational level have a higher frequency of BSE performance compared to Cypriot women. Although marital status was not found to significantly affect BSE performance (p-value=0.29), its interaction with country was found to be significant (b=-0.638, p-value=0.03), showing that the effect of marital status on BSE performance depends on country. The negative interaction coefficient and the positive (insignificant) effect, show that the effect of marital status is lower for Egyptian women compared to Cypriot women. The results additionally show that for Egyptian women, married women perform BSE more, whereas single Cypriot women have a higher frequency. Finally, although family history of breast cancer was not found to significantly affect BSE performance (p-value=0.95), its interaction with country was found to be significant (b=-0.759, p-value=0.004), showing that the effect of having a family member with breast cancer on BSE performance depends on the country. The negative interaction coefficient and the negative (insignificant) effect show that the effect of family history of breast cancer is higher for Egyptian women compared to Cypriot women.

DISCUSSION

This study has provided a comparative analysis regarding the beliefs and perceptions of Cypriot and Egyptian women about breast self-examination (BSE) as an early detection measure of breast cancer and has interestingly showed that there exist many differences between the two groups of women, most of which could be attributed to cultural attitudes.

Most of the women in the study had heard about BSE. However this proportion was significantly higher for Cypriot women compared to Egyptian women. Similarly, the proportion of women's reported practice of BSE at least once in the past was significantly higher for Cypriot women. The low percentages of Egyptian women's reported practice of BSE are similar to the percentages found in other studies for women with Middle East [34, 36 and 37]. Thus, they could reflect a consequence of cultural differences between European and Middle Eastern women.

More specifically, cultural beliefs of Middle Eastern women that could hinder them from using breast cancer screening include modesty of manner and behavior, fear and embarrassment [38-34]. The mean levels of "barrier" perceptions were relatively low for both groups of women in our sample. However, Egyptian women had a significantly higher level of barriers in performing BSE

compared to Cypriot women. Reported barriers for Egyptian women were embarrassment and lack of privacy. The results have, additionally, shown that “barriers” was one of the significant factors that affect women’s decision to perform BSE. This is in line with related literature, where “barriers” was found to be the most significant and powerful predictor of performing BSE [41-, 43].

The study results have shown that Egyptian women had a significantly lower level of “confidence” or “self-efficacy” in their ability to perform BSE correctly to find a breast lump, compared to Cypriot women. “Confidence” has also been shown to be a factor that significantly affects the performance of BSE, similar to other studies [21, 43-45]. Thus the lack of confidence could be an additional explanation for the corresponding low percentage of Egyptian women that perform BSE.

In addition, Egyptian women had a significantly lower knowledge of the benefits of BSE as a screening method that can help them find lumps early and increase their chance of survival, compared to Cypriot women. This result is in line with evidence that Asian and Middle Eastern people place more emphasis on problem solving within the family rather than reliance on and disclosure to outside sources and the medical community [46]. For example, Middle-Eastern women usually feel shy and embarrassed to consult a physician for sensitive female-specific health problems [47]. The lack of knowledge on the benefits of BSE could also explain the reported low percentage of BSE for Egyptian women. Similar evidence of lower knowledge on BSE and breast cancer of Middle-Eastern women compared to European women exists in other studies as well [7, 48].

Overall, both the low perception of the benefits and the low level of confidence of Egyptian women in performing BSE correctly, stress the need for proper medical knowledge and education regarding BSE. A study on Turkish women showed that the reasons for the low rate of BSE among Turkish women include the fear of finding that they have breast cancer, inadequate knowledge regarding how to perform BSE and lack of awareness about what to do if a lump is found [37]. However, other studies have shown that these barriers can be eliminated by BSE education and information [49-51]. Several researchers have emphasized the role that health care providers can play in educating and training women in BSE and the positive effect that well-designed awareness programs and public campaigns on BSE and breast cancer can have [34, 44, 52 and 53]. Such professional means could help women feel at ease

and become more confident about performing BSE and may provide knowledge about its benefits.

Additional results in our study showed that the mean levels of seriousness were high for both groups of women, indicating that all sample women considered breast cancer to be a serious disease that could affect their whole life. However, the mean levels of “susceptibility” were relatively low for both groups of women. This shows that the sample women generally did not worry about having a high probability of getting breast cancer. Similar findings were found in other studies of women from various cultures [34, 53-55]. Additional findings in our study were that the effects of the perceptions of both seriousness and susceptibility were more pronounced for Egyptian compared to Cypriot women. This could be attributed to the lower average age level of Cypriot women in the study, compared to Egyptian women: younger women may still not be thinking or worrying about the seriousness of the disease or their susceptibility to breast cancer. In fact, this explanation is supported by additional findings in our study, namely that age significantly affects the decision to perform BSE for both groups of women: older women appear to have a higher frequency of BSE, where the effect of age on frequency of BSE practice was more pronounced for Cypriot women. Related literature has similarly shown that older women are more likely to participate in breast screening [5, 17, 56-58].

A favorable result of the study was the high mean for “motivation”, which was the highest for all subscales of HBM, indicating that all sample women were motivated to perform BSE for early detection of a lump. It should be noted, however, that Cypriot women were significantly more health motivated compared to Egyptian women. This result could be in line with the Cypriot women’s European lifestyle, on one hand and with possible fatalistic beliefs of Egyptian women, on the other hand. Fatalistic beliefs (e.g., “if a woman is destined to get breast cancer, then detecting it at an early or late stage will not matter”) have been reported for Middle Eastern women in other studies [34].

Looking at other personal characteristics, the results showed that personal history of breast cancer significantly affected the decision to perform BSE for all sample women, where women that had been diagnosed with breast cancer had a lower frequency of BSE. Intuitive explanations of this result could be that these women are afraid of finding similar breast lumps or they trust their doctors who examine them regularly, instead of performing the examination themselves. In addition to

personal history, the results showed that family history of breast cancer also affected the frequency of BSE, but this effect was country bound, being more pronounced and significant for Egyptian women.

Other demographic characteristics that have been shown to affect the decision to perform BSE, but whose effect depended on country, were educational level and marital status. More specifically, the results have shown that the effect of marital status was higher for Cypriot women and it also had a different sign for each country, where it was married Egyptian women but single Cypriot women who performed BSE at a higher frequency. Regarding educational level, the findings showed that the effect of educational level was higher for Egyptian women and, in fact, not even significant for Cypriots' decision to perform BSE. Egyptian women with a higher level of education performed BSE more frequently. A significant association between BSE practice and education was similarly found in other studies [59] with Iranian women or Karayurt and Dramali, 2007, with Turkish women) [37].

It is interesting that, although the sample of women in the study was mainly educated, the percentage of women that performed BSE was low. This was observed in other studies as well. For example, Leslie, Deiriggi, Gross, DuRant, Smith and Veshnesky [60], who studied a sample of educated women, concluded that they had knowledge deficits about breast cancer risks and recommended age-appropriate breast cancer screening. Similar findings were also reported by Taha *et al.* [5], on a group of Jordanian women. What could be considered to be an encouraging finding in our study is that more than 60% of the women who did not perform BSE reported their intention to try BSE in the near future, at a similar level in both groups. Therefore, our results stress the need for educating women regarding BSE. Since their motivation level is high, with the proper knowledge, the benefits of BSE will be understood and its practice frequency will increase.

CONCLUSION

This study has shown that there exist many differences between Cypriot and Egyptian women, in relation to their perceptions on the practice of BSE. These differences could be attributed to cultural attitudes, especially related to barriers on behalf of Egyptian women. The results emphasize the need for introducing the proper and correct information about breast cancer and BSE as a screening method for early detection of the

disease, so that this method becomes more widely used. This information is deemed necessary, especially for Egyptian women, who appear to lack confidence in the correct performance of BSE and for whom perceptions of seriousness and susceptibility to breast cancer are significant factors in their decisions to perform BSE. In addition, the results show the importance of educating younger women on the benefits of BSE. The fact that the women in the sample appear to be motivated is important, together with the fact that a high percentage of women stated their intention to perform BSE in the future. Since the two groups of women appear to have different beliefs related to the practice of BSE, it is also recommended that providing knowledge and information is adapted according to culture and special characteristics of women.

Recommendations: Based on results of this study some recommendations could be suggested. There should be emphasis on the importance of BSE education, maximization of the role of health care providers in training of women on BSE and finally, well-designed awareness programs must be adapted according to culture and special characteristics of women.

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