Breast Reconstruction Awareness Among Turkish University Students: A Cross-Sectional Study

Türk Üniversite Öğrencilerinde Meme Onarımı Farkındalık Düzeyi: Kesitsel Çalışma

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Özet

Amaç: Son yıllarda meme kanseri tedavisinde yaşanan gelişmelerin sonucu olarak hastalarda hayat beklentisi uzamış ve buna bağlı olarak mastektominin olumsuz fiziksel ve psikolojik etkileri daha dikkat çekici bir hal almıştır. Bu kapsamda mastektomi sonrası meme onarımının önemi artmıştır. Yalnız onarım cerrahilerinin yaygınlaşması ancak hastalarda farkındalık yaratarak mümkün olacaktadır. Buradan yola çıkarak, çalışmamızda üniversite öğrencilerinde meme onarımı farkındalık düzeylerini tayin etmeyi amaçladık. Gereç ve Yöntem: Çalışmanın evrenini sağlık bilimleri ile ilişkisi olmayan Türk kadın üniversite öğrencileri oluşturmaktadır. Tüm katılımcılardan meme kanseri ve onarımı ile ilgili farkındalık durumunu değerlendirmeyi amaçlayan anketleri doldurmaları istenmiştir. Bulgular: Çalışmaya ortalama yaşları 20.5 olan 462 kadın öğrenci dahil olmuştur. Meme kanseri ile ilgili uyarıcı bulgular, erken tanı yöntemleri ve tedavi seçenekleri ile ilgili değerlendirmede farkındalık seviyeleri oldukça yüksek saptanmıştır. Diğer taraftan, katılımcıların sadece %35.9'u meme onarımı seçeneğinin varlığı ile ilgili bilgiye sahipti. Bu grupta onarım ameliyatları ile ilgili temel bilgi kaynağının televizyon olduğu tespit edildi. Bu öğrencilerin %74.1'i protez ile meme onarımı hakkında bilgiye sahipken, öz doku ile meme onarımı hakkında katılımcıların sadece %31.3'ü bilgi sahibiydi. Öğrencilerin sadece üçte biri meme onarımı ameliyatlarının genel sağlık sigortası kapsamında olduğunu bilmekteydi. Katılımcıların %62.6'sı meme onarımı ameliyatlarının hastanın fiziksel ve psikolojik iyilik durumu için önemli olduğunu düşünmekteydi. Tartışma: Katılımcıların meme kanseri ile ilgili yüksek farkındalık düzeyleri ile karşılaştırıldığında, meme onarımı ile ilgili farkındalık düzeylerinin göreceli olarak düşük olduğunu söyleyebiliriz. Bu durum Türkiye'de düşük meme onarımı oranlarını açıklamaya yardımcı olmaktadır. Bu nedenle, meme onarımı ile ilgili farkındalığı arttırmaya yönelik çalışma ve planlamalara ağırlık verilmesi oldukça önemlidir.

Anahtar Kelimeler

Meme; Meme Kanseri; Meme Onarımı; Farkındalık; Protez; Meme Rekonstrüksiyonu

Abstract

Aim: Because advances in breast cancer treatment methods have resulted in dramatic increases in survival rates, the consequences of mastectomy on physical and psychological well-being of breast cancer patients have gained in importance. In this context, breast reconstruction is a viable option nowadays. However, public awareness is a prerequisite for the utilization of this option. This study has attempted to assess awareness among Turkish female university students about breast reconstruction. Material and Method: The participants of this cross-sectional study were Turkish female university students. We evaluated awareness of breast cancer and reconstruction using a set of questionnaires designed for the study. Results: 462 students with an average age of 20.5 agreed to participate in the study. High knowledge rates of warning signs, detection methods, and treatment options for breast cancer were observed. However, only 35.9% of the participants were aware of the possibility of breast reconstruction. Of this group, mass media was identified as the major source of information. While implant-based reconstruction was familiar for 74.1% of participants who were aware of breast reconstruction, only 31.3% knew about autologous reconstructions. One third of these participants knew that reconstructive surgeries are covered by health insurance. 62.6% of these participants stated that breast reconstruction is important for the well-being of cancer patients. Discussion: In comparison with participants' high knowledge of breast cancer, the level of awareness about breast reconstruction can be considered relatively low. This imperfect knowledge is among the main reasons behind low rates of reconstruction. Therefore, all efforts should be made to disseminate awareness of breast reconstruction.

Keywords

Breast; Breast Cancer; Breast Reconstruction; Awareness; Implant

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Introduction

Excluding cancers of the skin, breast cancer is the most commonly diagnosed cancer among women [1]. In 2016, an estimated 300,000 new cases of invasive and non-invasive breast cancer are expected to be diagnosed in women in the US. It is also the second leading cause of cancer deaths among women after lung cancer. An estimated 40,000 breast cancer deaths are expected among U.S. women in 2016 [2]. In Turkey, breast cancer incidence is 33.7 per hundred thousand and each year approximately 17,000 women are diagnosed with breast cancer [3]. However, the incidence rate is expected to grow rapidly in the next few years simply due to the aging of the population and the greater adoption of a Western lifestyle by the Turkish population [4].

Along with their function in feeding infants, female breasts permanently impact a woman's perception of her body image [5]. Mastectomy, as a breast removal, is commonly associated with loss of this worthy image because it involves the removal of an organ that women consider symbolic of their femininity and sexuality [6]. These patients may experience critical psychological sequels such as poor self-esteem [7], loss of femininity [8], embarrassment in exposing their body [9], altered sexual function [10], loss of libido [11], and relationship problems [12]. Coping with these concerns has been considered important in terms of making a full recovery. Consequently, conservative breast surgery has become more and more popular in recent years [13]. Many studies have reported equivalent survival rates for breast cancer treatment with mastectomy and breast conserving surgery in women with early stage breast cancer [14,15]. However, breast conserving surgery does not completely eliminate the use of mastectomies because of incomplete resection margins and local recurrences [16]. In Turkey, the rate of breast conserving surgery is thought to be 34% of patients [17]. Breast reconstruction may, therefore, be required in a significant proportion of breast cancer patients [18].

Different techniques of breast reconstruction are becoming a new standard of care in the management of breast cancer patients [19]. The options for reconstruction include implant-based and autologous tissue transfers. These surgeries can either be carried out at the same time as the mastectomy or as a delayed operation [20]. The aim of these surgeries is to restore a breast to near normal shape, appearance, and size by replacing tissue loss after mastectomy. Besides cosmetic advantages, it has been shown that women who have undergone breast reconstruction are highly satisfied with the quality of their lives as well as the psychological and social aspects [21]. Although reported rates of breast reconstruction vary widely, it is evident that most patients undergoing mastectomy for breast cancer do not undergo breast reconstruction. Despite health insurance coverage, breast reconstruction rates in the United States ranged from 25% to 35% from 2003-2007 [22].

Although not yet empirically documented, it is obvious that the overall rate of breast reconstruction has increased in Turkey in the recent few years. However, the number of women who undergo breast reconstruction after mastectomy remains low in comparison with the developed countries. This fact influenced the design of our study and our search for knowledge about why Turkish breast cancer patients are not opting for breast reconstruction. We hypothesized potential factors that may act as barrier to breast reconstruction. The post-mastectomy patient may not be aware of (1) reconstructive breast surgery being possible after mastectomy; (2) the different options for timing and technique of breast reconstruction; (3) that the benefits of breast reconstruction extend beyond cosmetics; (4) that there is no clinical evidence that breast reconstruction hinders the detection of breast cancer recurrence; or (5) that reconstructive procedures are covered by health insurance. All of these issues have been evaluated in the current study.

Material and Method

Ethical consideration

This study was approved by Ahi Evran University Institutional Review Board and Ethics Committee (Kırşehir, Turkey). All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Study design and participants

We conducted a descriptive cross-sectional study in order to evaluate breast reconstruction awareness. The participants were 481 Turkish female university students in non-health-related disciplines. There were no incentives provided for participants. The university from which the participants were recruited has a very large cohort of students. Students were required to be 18 years of age or older. 19 students did not complete the questionnaire, giving a completion rate of 96%. Prior to completing the questionnaire, all students were provided with instructions regarding the nature and duration of the study and the informed consent process. All participants provided written informed consent and the questionnaire took 10 minutes to complete.

Data collection

A descriptive cross-sectional study was conducted with the purpose of evaluating the level of awareness about breast reconstruction among Turkish female university students. A self-administered questionnaire in the Turkish language was designed with an appropriate heading indicating the content. The questionnaire was pilot tested on 15 students (not included in the sample of the study) to check the clarity of the questions. The questionnaire consisted of three sections:

1. Socio-demographic data.
a. Age
b. Faculty year (student's year of study—e.g., first-year)
c. Marital status
d. Personal history of breast cancer
e. Family/friend history of breast cancer
2. Knowledge about breast cancer.
a. Knowledge of breast cancer warning signs.
b. Knowledge of breast cancer early detection methods.
c. Knowledge of breast cancer treatment options.
3. Knowledge about breast reconstruction.
a. Awareness about the possibility of reconstructing the breast(s) after removal of one or both breasts in the context of

breast cancer treatment.
b. Sources of information about breast reconstruction.
c. Knowledge of breast reconstruction methods.
d. Knowledge of timing options for breast reconstruction.
e. Knowledge of financial issues related to breast reconstruction.
f. Attitudes toward breast reconstruction.

Results

Characteristics of the participants

The age of participants in this study ranged from 18 to 24 years with a mean of 20.5 (SD=1.9). 42.4% of the participants were third-year students, 28.3% were second-year, and 21.9% were fourth-year; only 7.4% were first-year students. All of the participants were single. None had a history of breast cancer. Only 6.9% of students reported a family or friend history of breast cancer. Characteristics of our sample are shown in Table 1.

Table 1. Sample characteristics

Characteristics	N = 462	
	N	%
Faculty year		
First	34	7.4
Second	131	28.3
Third	196	42.4
Fourth	101	21.9
Social status		
Single	462	100
Married	0	0
Personal history of breast cancer		
Yes	0	0
No	462	100
Family/friend history of breast cancer		
Yes	32	6.9
No	430	93.1

Knowledge of breast cancer

In the evaluation of knowledge about warning signs of breast cancer, breast mass and breast pain were the most-known symptoms for breast cancer, accounting for 88.1% and 84.2% of the participants, respectively. On the other hand, other symptoms such as bloody nipple discharge, changes in breast and nipple shapes, and redness of breast skin were relatively less known (Table 2). Most of the students (73.2%) identified breast self-examination as an early detection method of breast cancer. More than half of the participants were aware of other measures such as mammography (61.9%) and breast ultrasonography (65.3%) (Table 3). 92.4% of the participants were aware of surgery as a treatment method for breast cancer. On the other hand, relatively smaller proportions of the participants were aware of chemotherapy (38.1%), radiotherapy (31.4%), or hormonal therapy (8.2%) (Table 4).

Knowledge of breast reconstruction

The major goal of this study was to evaluate awareness of breast reconstruction. 35.9% of the participants were aware of the possibility of breast reconstruction after mastectomy (Table 5). Of this group, mass media such as television and radio was identified as the major source of information about breast reconstruction by 92.7% of participants, followed by print media such as magazines and newspapers (46.9%) (Table 6). Implant-based breast reconstruction was a familiar option for 74.1% of the participants who had knowledge of breast reconstruction. On the other hand, only 31.3% of these women knew about autologous reconstructions (Table 7). In the assessment of knowledge of reconstruction timing, only 40.9% of the students who knew about reconstructive surgeries were aware that these surgeries can be performed simultaneously with the mastectomy, whereas delayed reconstruction was familiar to 67.4% (Table 8). Only 53 participants (31.9% of 166) knew that reconstructive surgeries are covered by health insurance (Table 9). In the evaluation of attitudes towards breast reconstruction,

Table 2. Knowledge of warning breast cancer signs.

Which of the following do you think is a warning sign of breast cancer?	N = 462	
	N	%
Breast lump	407	88.1
Bloody nipple discharge	337	72.9
Breast pain	389	84.2
Changes in breast shape or size	328	70.9
Redness of breast skin	354	76.6
Retraction of the nipple	373	80.7

Table 3. Knowledge of breast cancer early detection methods.

Which of the following do you think is a method for early breast cancer detection?	N = 462	
	N	%
Breast self-examination	338	73.2
Mammography	286	61.9
Breast ultrasonography	302	65.3

Table 4. Knowledge of breast cancer treatment methods.

Which of the following do you think is a method of breast cancer treatment?	N = 462	
	N	%
Surgery	427	92.4
Chemotherapy	176	38.1
Radiotherapy	146	31.6
Hormonal therapy	38	8.2

Table 5. Knowledge about the possibility of breast reconstruction after mastectomy.

Do you know that it is possible to reconstruct the breast(s) after removal of one or both breasts in the context of breast cancer treatment?	N = 462	
	N	%
Yes	166	35.9
No	296	64.1

Table 6. Sources of participants' information.

What is your source of information about breast reconstruction?	N = 166	
	N	%
Television or radio	154	92.7
Magazines/books/newspapers	78	46.9
Friends/relatives	23	13.8

Table 7. Knowledge of breast reconstruction methods.

What are breast reconstruction options you know?	N = 166	
	N	%
Breast reconstruction with implants	123	74.1
Breast reconstruction with patient's own tissue	52	31.3

Table 8. Knowledge of timing options for breast reconstruction.

When do you think that breast reconstruction can be performed?	N = 166	
	N	%
Simultaneously with the surgical removal of the affected breast(s).	68	40.9
In a separate operation after the surgical removal of the affected breast(s)?	112	67.4

Table 9. Knowledge of financial issues related to breast reconstruction.

Do you think that health insurances cover breast reconstruction surgeries?	N = 166	
	N	%
Yes	53	31.9
No	113	68.1

62.6% of the participants who were aware of breast reconstruction stated that breast reconstruction after mastectomy is important for the physical and psychological well-being of breast cancer patients (Table 10).

Discussion

In the first part of the current study, awareness about breast cancer was evaluated. Taken together, the knowledge rates of warning symptoms, early detection measures, and treatment options can be considered to be high. We think that this high rate of awareness is related to the participants' level of education, since it has been shown that the educational qualification is a significant predictor for high awareness level about breast cancer [23]. In addition, the effective long-running national cancer control program held in Turkey may have contributed to this high level of knowledge.

In spite of the high knowledge about mastectomy as a treatment option for breast cancer, approximately two-thirds of the participants were not aware that reconstruction was a viable option after mastectomy. This is despite the fact that facilities of cancer detection, treatment, and reconstruction all were available in the city in which this study was conducted. If such is the condition among university students, the situation of non-educated women is therefore hard to imagine. Spreading awareness among this population is a really difficult task. We think that this lack of awareness represents the main reason behind the low rates of breast reconstruction in Turkey. Developing public educational programs such as breast reconstruction awareness (BRA) day is fundamental in order to achieve progress in this problem by promoting education and awareness about breast reconstruction after mastectomy. Unfortunately, such awareness campaigns are held only occasionally in Turkey because there is no strategic media plan. For this reason, the target population has not been reached at the desired level.

It has been shown that media plays an effective role in influencing an individual's behavior to deal with health-related issues [24,25]. The great majority of our sample identified mass and print media as the major source of information about breast reconstruction. In this context, celebrity announcements of breast cancer-related treatment has been shown to have a significant impact on public awareness regarding treatment methods [24]. For example, Angelina Jolie's breast surgery dramatically increased Austrian women's awareness of reconstructive breast surgery options [26]. We think that the media can be used more effectively in Turkey regarding this issue.

Educational initiatives and media aimed at increased individual and public awareness can only be a supplement—by no means a substitute—for the role of the physician in promoting this awareness. We think that it is the referring surgeon's responsibility to give patients information regarding breast reconstruction and to include plastic surgeons in the decision-making process. The option for breast reconstruction may not be presented to some breast cancer patients simply because their surgeons are still biased against reconstruction. It has been shown that many surgeons have concerns about compromising surgical resection for reconstruction and the possibility of hindering detection of local recurrences, despite the fact that clinical evidence does not support these viewpoints [27]. Breast reconstruction should be regarded as an integral part of breast cancer treatment with positive effect on patients' quality of life after mastectomy.

Another interesting finding of our study is that a significant proportion of participants who were aware of breast reconstruction had inadequate knowledge about important aspects of breast reconstruction such as reconstruction methods, timing options, surgical safety, and financial issues. We believe that this imperfect knowledge can also act as a barrier to breast reconstruction. For example, approximately two-thirds of the participants who were aware of breast reconstruction stated that these operations are not covered by insurance. This is despite the fact that breast reconstruction procedures are covered by health insurance in Turkey, whether they are done in conjunction with mastectomy, soon after mastectomy, or years later. We believe that this is because people generally tend to perceive plastic surgery as "cosmetic surgery." This situation has been proposed as the reason for low utilization of breast reconstruction among breast cancer patients in the United States [28].

We think that one of the main reasons that may deter patients from undergoing breast reconstruction is lack of knowledge about reconstruction methods. Of the participants who were aware of breast reconstruction, only a small proportion had knowledge about autologous tissue transfers as an option; the majority knew only about implants as a reconstructive option. Widening the knowledge about autologous options is important because many women would choose not to have breast reconstruction after mastectomy if that meant having an implant or foreign object in their body.

Some breast cancer patients may choose not to have breast reconstruction because they do not want another surgical operation which they feel is unnecessary. More than half of the participants with knowledge about breast reconstruction thought that breast reconstruction after mastectomy is not worth the risks and efforts. Previous studies have shown that patients' feelings that restoration of the breast was not important at the time of cancer diagnosis was a fundamental reason for not un-

dergoing reconstruction [29]. We believe that more information about the psychosocial and quality-of-life benefits of breast reconstruction should be disseminated in more detail through physicians and through the media. Perceptions of patients should then evolve away from viewing breast reconstruction as a "cosmetic procedure."

One of the major limitations of our study is that the sample included only university students, so the results of the study cannot be generalized to the larger population in Turkey. Another limitation of this study is that our population was relatively homogenous as a group. This did not allow us to evaluate the effects of various socio-demographic variables such as age, race, social status, and educational background on the degree of awareness about breast reconstruction. These factors have been cited in the literature as predictors of breast reconstruction utilization [30,31].

Conclusion

In comparison with participants' high knowledge of breast cancer, the level of awareness about breast reconstruction can be considered to be relatively low. This imperfect knowledge is among the main reasons for low rates of breast reconstruction. As with breast cancer detection, all efforts should be made for disseminating awareness among the population of breast reconstruction.

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Ethical Consideration

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was given by all participants who were included in this study.

Competing interests

The authors declare that they have no competing interests.

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