

# Awareness and knowledge of breast cancer rehabilitation among Saudi Arabia physical therapists

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**Abstract. – OBJECTIVE:** This study aimed to evaluate the physical therapists' knowledge and awareness of breast cancer, treatment modalities, contraindications, and clinical guidelines.

**SUBJECTS AND METHODS:** A cross-sectional survey was conducted from December 2020 to May 2021 in Saudi Arabia. The sample size was determined using the Raosoft sample size calculator, which indicated the need for 67 participants. All physical therapists of both sex in private and public hospitals in Ha'il and non-Ha'il regions were included in the study. Data was collected by a structured Google form questionnaire, consisting of 4 main domains with a maximum score of 43.

**RESULTS:** 57 physical therapists participated in the current study, out of which 31 were from the Ha'il region (42.1% male, 57.9% female) with a mean age of 29±7 years and a mean experience 6±7 years. The referral of breast cancer patients was only 22.8%. Interestingly only 22.8% of the hospital has specific setups for oncology rehabilitation, and 12.3% have reported positive about continuing professional development (CPDs) workshops for breast cancer organized by their hospitals. 5.3% of patients with breast cancer are aware of the benefit of oncology rehabilitation, while 22.8% of patients come for follow-up sessions in the rehabilitation department. According to multiple regression, only gender was statistically significant for prediction,  $p < 0.05$ . Females increased the mean score by 5.996 more than males. Female therapists are 38.2% more aware than males.

**CONCLUSIONS:** Although physical therapists have a low level of knowledge and an average level of awareness, with a higher num-

ber of women than men, attitudes toward physical therapy are quite high, and the profession is practiced exceptionally well.

*Key Words:*

Breast cancer, Awareness, Knowledge, Physical therapists.

## Introduction

Breast cancer is a major public health problem worldwide<sup>1</sup>. It is most common in females, but its incidence rate varies geographically. Approximately one in eight women may develop breast cancer in their lifetime<sup>2,3</sup>. In Saudi Arabia, the incidence of breast cancer increased by >30% between 2008 and 2012<sup>4</sup>. Interestingly, breast cancer counted for 29% of all female cancer cases in 2012 among the Saudi population<sup>5</sup>.

Several factors have been related to the increase in the risk of breast cancer. Obesity, young age at menarche, late age childbirths, short lactation periods, physical inactivity, and environmental factors contribute to breast cancer<sup>6,7</sup>.

Although breast cancer mortality is at fifth rank across the globe<sup>2</sup>, advanced treatments and early detection have resulted in improved survival rates in the last two decades. Many of these survivors may have physical and psychological impairments, which can affect their daily activities and quality of life<sup>8,9</sup>. These impairments can

be because of the cancer itself or the side effects of multiple treatments<sup>10,11</sup>. Impairments include fatigue, pains, weakness, musculoskeletal problems, neuropathies, balance impairments, lymphedema, sleep disturbance, biomechanical issues, and cardiovascular impairments<sup>12-15</sup>.

Nurses and technicians missed more shifts than doctors and biologists because of occupational hazards such as physical load handling. Doctors and biologists fared better than nurses and technicians in terms of employability. Upper-body injuries on the job tend to be severe and frequent. This could have an impact on both productivity and sick days<sup>16</sup>.

Working as an interprofessional team can give the best possible outcomes for breast cancer patients<sup>17</sup>. Physical therapists can employ evidence-based practices to diagnose and treat patients. They may help manage patients by improving strength, range of motion, endurance, mobility, posture, cardiovascular fitness, body composition, depression, and reducing swelling, thus improving daily activities and quality of life<sup>18-21</sup>. A randomized study<sup>22</sup> showed the valuable clinical effects of regular physical activity on general health, fatigue, strength, quality of life, and functional performance during and after the treatment of breast cancer.

Many cancer survivors want to seek rehabilitation services to improve their quality of life<sup>23</sup>. To effectively apply evidence-based practice, Physical therapists should be aware of and know the complication of breast cancer, treatment approaches, and modalities. Furthermore, understanding the contraindication and clinical guidelines that aim to synthesize breast cancer treatment is very important. Recognizing this role, awareness, and knowledge among rehabilitation professionals is very crucial nowadays. No previous study has been done to assess the awareness about breast cancer rehabilitation among physical therapists. The objectives of the present study were to assess awareness, knowledge, attitude, and practice of physical therapy roles for breast cancer patients among the physical therapists of Ha'il and compare to other region Physical therapists; to understand if the specialist refers breast cancer patients for physiotherapy; to identify the role of the hospital in developing the staff knowledge.

## Subjects and Methods

This cross-sectional survey was conducted from December 2020 to May 2021 among Physical therapists in the Hail region and non-Ha'il

region in Saudi Arabia. The study was granted ethical approval with number H-2020-228 by the Ethical Committee at Ha'il University. The sample size was determined using Raosoft sample size calculator (Raosoft Inc., Seattle, WA, USA) with a 95% of confidence interval at a response rate of 50% and 5% marginal error, which indicated the need for 67 participants. A convenient sampling technique was used to recruit participants.

All Physical therapists of both sex from private and public hospitals in Hail and non-Hail region were included in the study. Internees and students were excluded.

An online questionnaire link was used to collect the data. Participants were approached by contacting the head of physical therapy departments in the Ha'il region and using social media groups in the non-Ha'il regions. Every participant was informed about the research purpose and signed a consent form.

A Google form self-structured questionnaire was used for data collection. The questionnaire build-up consisted of several steps. By reviewing different studies' questionnaires and according to the aim and objectives of the study, the questionnaire was prepared by 2 researchers. After a review of 10 expert physical therapists, it was finalized and included a closed-ended questionnaire consisting of 8 domains; 1- personal information, 2- awareness, 3- referral and previous experience, 4- role of hospital/organization and others, 5- patients related question, 6- knowledge, 7- practice, and 8- attitude.

For scoring Likert scale was used. The minimum score for each domain was 0, and the awareness domain comprised 6 items with a maximum score of 22, knowledge 13 items with a maximum score of 13, practice 4 items with a maximum of 4, and attitude 4 items with a maximum of 4. The sum of all previously mentioned 4 domains had a total maximum score of 43 and a minimum of 0. Each domain was given a score that was based on one of five categories, ranging from poor to excellent: (poor, low, average, high, and excellent).

## Statistical Analysis

After the collection of data, information was coded and transferred to SPSS. SPSS version 21 (IBM Corp., Armonk, NY, USA) was used to analyze the data. Results were presented as frequencies, percentages, mean and standard deviations. To compare the total score for each domain and the total domain-independent sample *t*-test was used. To investigate if the total score can be predicted by 6 demographic characteristics (Age, Gender, Ex-

perience, Degree, Organization, and Do you work as a physiotherapist in the Hail region), a stepwise multiple linear regression model was used. The significant level was considered at  $p < 0.05$ .

## Results

57 Physical therapists participated in the current study, 31 were from the Ha'il region (42.1% males and 57.9% females) with a mean age of  $29 \pm 7$  years and a mean experience of  $6 \pm 7$  years. The demographic characteristics of the sample are

presented in Table I. Due to no difference in all 4 domains of the questionnaire in Hail and non-Hail region therapists, all the data were demonstrated in Table I. The referral of breast cancer patients was only 22.8%, and 75.4% of therapists never treated breast cancer patients. 36.8% reported that knowledge about breast cancer was gained through workshops, seminars, and conferences.

Interestingly only 22.8% of the hospital has specific setups for oncology rehabilitation and only 12.3% reported positive about continuing professional development (CPDs) workshops for breast cancer treatments and new interventions

**Table I.** Demographics characteristics of the sample.

Variable	Count	Percentage (%)	
Gender	Male	24	42.1%
	Female	33	57.9%
Degree	Diploma	3	5.3%
	Bachelor	48	84.2%
	Master	4	7.0%
	PhD	2	3.5%
Organization	Government	45	78.9%
	Private	12	21.1%
Do you work as a physiotherapist in Ha'il region?	Yes	31	54.4%
	No	26	45.6%
Organization	Government	45	78.9%
	Private	12	21.1%
Is there any referral for breast cancer patients by clinicians/oncologists to the physiotherapy department where you work?	No	44	77.2%
	Yes	13	22.8%
Have you ever treated breast cancer patient?	No	43	75.4%
	Yes	14	24.6%
How do have knowledge of breast cancer?	No	8	14.0%
	Bachelor's curriculum	14	24.6%
	Workshops/Seminars/conferences	21	36.8%
	Elsewhere	14	24.6%
Does your organization have a specific setup for oncology rehabilitation?	No	28	49.1%
	I do not know	16	28.1%
	Yes	13	22.8%
Does your organization organize continuing professional development (CPDs) workshops for breast cancer treatments and new interventions?	No	29	50.9%
	I do not know	21	36.8%
	Yes	7	12.3%
Are breast cancer patients aware of the benefits of oncology rehabilitation?	I do not receive a referral	38	66.7%
	No	6	10.5%
	To some extent	10	17.5%
	Yes	3	5.3%
Do breast cancer patients come for follow up visits in rehabilitation	I do not receive referral	38	66.7%
	No	6	10.5%
	To some extent	0	0%
	Yes	13	22.8%

**Table II.** Awareness, knowledge, attitude, practice, and total score for Ha'il and non-Ha'il region among the physiotherapists.

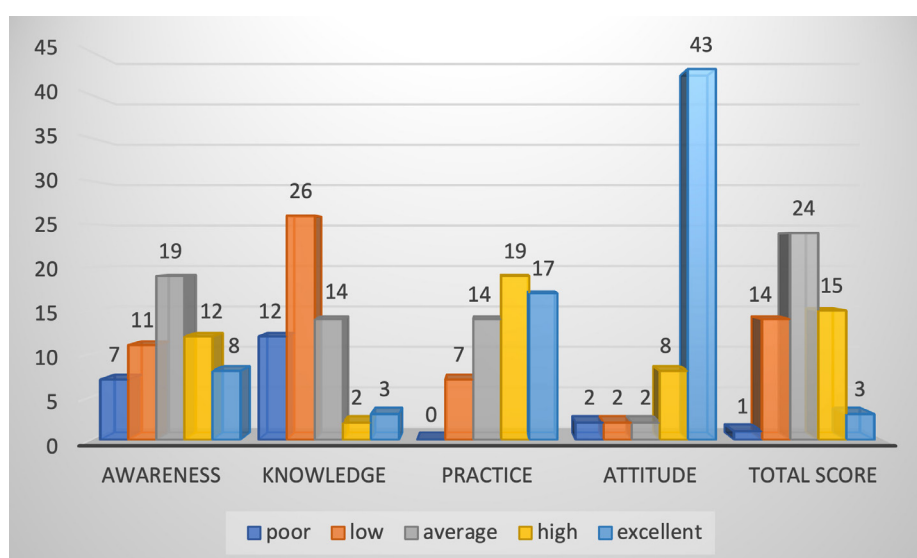
Variable	Do you work as a physiotherapist in Hail region?	N	Mean	Std. Deviation	p-value
Total awareness score	yes	31	12.35	5.23	0.221
	No	26	10.58	5.59	
Total knowledge score	yes	31	4.37	2.49	0.295
	No	26	5.10	2.69	
Total practice score	yes	31	2.84	0.97	0.798
	No	26	2.77	1.07	
Total attitude score	yes	31	3.55	0.99	0.970
	No	26	3.54	0.99	
All scores	yes	31	23.11	7.19	0.591
	No	26	21.98	8.62	

organized by their hospitals. Only 5.3% of the Physical therapists said that breast cancer patients are aware of the benefit of oncology rehabilitation, while 22.8% said that patients with breast cancer come for follow-up sessions in rehabilitation departments. In general, the total score was 22.6 showing an average level. The awareness means the value was 11.54 out of 22 maximum scores showing an average level. The practice and attitude domain showed a high score with an average of 2.81 and 3.54 out of 4, respectively. Knowledge domains showed a low value with a mean of 4.70 out of 13. In knowledge, 45.6% were in a low score, while 21.1% showed a poor score (Table II). Categories of main domains and total scores can be observed in Figure 1.

According to multiple regression, only gender was statistically significant for the prediction of the total score,  $p < 0.05$ . Females increased the mean score by 5.996 than males. Female therapists are 38.2% more aware than males. Regression coefficients and standard errors can be observed in Table III.

### Discussion

To our knowledge, this survey was the first to identify awareness, knowledge, attitude, and practice of physical therapists for breast cancer patients within Saudi Arabia. It also assessed the referral rate for breast cancer patients to physiotherapy de-



**Figure 1.** Categories of main domains and total score.

**Table III.** Stepwise multiple linear regression for the total score and demographic characteristics.

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	13.129	3.237		4.056	.000	6.641	19.616
	Gender	5.996	1.957	.382	3.064	.003	2.075	9.918

partments and the role of hospitals in developing staff knowledge. 57 Physical therapists participated in the current study, of which 31 were from the Ha'il region and 26 from outside the Hail.

Previous studies<sup>23,24</sup> mainly focused on awareness of breast cancer, among the population about its early diagnosis and, oncologists and health care professionals for treatment protocols. In 2013, a review<sup>23</sup> consisting of almost 30 studies, about awareness of breast cancer, focused only on self-examination in the population and awareness among doctors and nurses only. According to the present study, the awareness among physical therapists is at an average level and females are more aware at a rate of 38.2% rather than males. One study conducted in the Makkah region<sup>24</sup> found that females had a higher degree of awareness than males and that medical students in the area had a higher level of general awareness, knowledge, and attitude than non-medical students due to their curriculum. However, in the present study, 36.8% of physical therapists obtained this knowledge from workshops, seminars, and conferences, and only 5.3% of breast cancer patients were aware of the benefit of oncology rehabilitation.

Some studies<sup>25-27</sup> reported that healthcare professionals were aware of the benefits of rehabilitation but unaware of treatment strategies and clinical guidelines, although the specialty of professionals has not been identified in these studies. In the present study, therapists' knowledge was at a low level but practice and attitude towards physical therapy were high and excellent.

Rehabilitation services require rehabilitation guidelines to be integrated into cancer care services. But national and international cancer guidelines<sup>28</sup> reported that rehabilitation services are not integrated into cancer care services. The suggested solution is to develop and promote specialized setups in institutions and continuous professional development programs. According to the present study, only 22.8% of the hospital has a specific setup for oncology rehabilitation. More-

over, only 12.3% of hospitals organize continuous professional development (CPD) workshops for breast cancer treatments and new interventions. In Ireland, healthcare professionals also acknowledged the value of physical activity but reported that physical therapy recommendations did not follow current physical activity guidelines<sup>29</sup>.

Although rehabilitation services depend on referrals, interdisciplinary communication, and effective treatment techniques<sup>30</sup>. According to the present study, the referral rate of breast cancer patients was only 22.8% in Saudi Arabia. In Australia, cancer specialists reported 60% referral of patients to supportive care services<sup>31</sup>.

Although in both the United Kingdom (UK) and Brazil, half of the patients having breast reconstruction are referred to physical therapists, Brazilian patients have a stronger follow-up rate than the UK<sup>32</sup>. While in the present study, 43% of therapists never treated many breast cancer patients, and only 22.8% of patients come for follow-up visits as informed by the physical therapists.

Overall lack of knowledge, low awareness level, and decreased referral rate can be barriers to breast cancer rehabilitation services. Healthcare professionals in a qualitative study<sup>33,34</sup> categorized barriers such as institutional, professional, and patient levels and suggested including physical therapists in healthcare teams, which indicates that physiotherapists had not been part of healthcare professionals. Another qualitative study identified healthcare providers' competencies and knowledge, communication, limited rehabilitation services, and patient- and family-related issues as barriers in cancer rehabilitation in Saudi Arabia in 2019<sup>35</sup>.

The communication gap between these health professionals was also identified<sup>35</sup>. In a cross-sectional survey<sup>36</sup>, 94% of physical therapists certified as lymphedema therapists from Saudi Arabia identified barriers of two types. Work-related, including lack of awareness, certified therapists, knowledge, space, access, administrative support, and inade-

quate referral system. The second is family-related, including lack of financial support, transportation problems, lack of social support and motivation, limited physical activities, high cost of treatment, poor treatment compliance, and patient dissatisfaction<sup>36</sup>. Also, in 2016 in Sakaka city in the Kingdom of Saudi Arabia, while assessing the effect of physiotherapy role in cancer treatment, a study reported the same barriers as lack of referrals, motivation, awareness, and limited exercise resources and also highlighted the importance of creating specific cancer physiotherapy department<sup>37</sup>. Almost similar barriers have been reported by different other studies and systemic reviews<sup>38-45</sup> done in the USA, Canada, Korea, Scotland, and other areas.

The Ministry of Health of Saudi Arabia is not only trying to avoid breast cancer by raising awareness campaigns but also by focusing on the possibility of healing, the use of modern communication methods, mental and psychological support, breastfeeding, the availability of modern medical devices, student and volunteer encouragement, participation in international conferences, and investment encouragement.

### **Limitations**

This study has several limitations and strengths, the small sample size, the results cannot be generalized, and the information reported is only by physical therapists. Based on the above results, it is suggested that knowledge about breast cancer rehabilitation should be included in the curricula of medical and allied health practitioners in undergraduate degrees to avoid the knowledge gap and to increase evidence-based practice. Also, at the patient level, awareness campaigns should focus on rehabilitation services. Moreover, to improve referral rates, policies should be revised and implemented at the institutional level with increasing professional development sessions focusing on all members of cancer care teams. In the future, further studies can be done with a large sample size and including data from all concerned healthcare professionals and the Ministry of Health.

### **Conclusions**

Although physical therapists have a low level of knowledge and an average level of awareness, with a higher number of women than men, attitudes toward physical therapy are quite high, and the profession is practiced exceptionally well. The hospital should make greater efforts to host continuing professional development (CPDs) ses-

sions. Undergraduate curriculums need to include more details about breast cancer rehabilitation. Furthermore, the policy may need to be revised so that more people with breast cancer may be referred to rehabilitation services.

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### **Conflict of Interest**

The authors declare no conflict of interest.

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### **Ethics Approval**

The study was approved by the Ethical Committee at Ha'il University (ethical approval number H-2020-228).

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### **Informed Consent**

Every participant was informed about the research purpose and signed a consent form.

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### **Data Availability**

The authors declare that all relevant data supporting the findings of this study are available within the article.

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### **Authors' Contributions**

All authors contributed to the study conception and design, as well as the collection, analysis, and interpretation of data. The first draft of the manuscript was written and reviewed. All authors read and approved the final manuscript.

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