ORIGINAL ARTICLE

KNOWLEDGE AND AWARENESS OF PILATES IN BREAST CANCER REHABILITATION AMONG MALAYSIAN PHYSIOTHERAPISTS.

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Abstract

Background: Breast cancer is the most dominant cancer, accounting for 33% of all cancer in Malaysia. Accordingly, there are several strategies have been implemented in the management of breast cancer. Pilates is one of the effective methods that focus on the rehabilitation of breast cancer survivors. However, there is a paucity of evidence into the insight of Pilates and its recognition.

Objective: The study aims to determine the knowledge and awareness of Pilates in breast cancer rehabilitation among physiotherapists in Malaysia.

Methods: A cross-sectional study was conducted among 113 physiotherapists located in Selangor, Malaysia. A self-structured questionnaire was used to obtain data. The questionnaire was divided into four sections namely demographic status, awareness and knowledge of Pilates on women's health and breast cancer, perception and interest in pursuing new knowledge on women's health and implementation of Pilates in women's health and breast cancer.

Results: The result obtained showed that the majority of the female therapists (68%) and only a small percentage of male therapists (27%) are aware of Pilates. The majority of the participants (n=51, 45.13%) are unaware that musculoskeletal complications secondary to breast cancer can be treated using Pilates.

Conclusion: Low-to-moderate level of knowledge and awareness about Pilates in female breast cancer rehabilitation was identified among Malaysian physiotherapists in this study. Hence there is a need to escalate the level of awareness and knowledge of Pilates among Physiotherapists in Malaysia.

Keywords: Pilates, breast cancer, physiotherapist, awareness, knowledge

Introduction

Breast cancer is the most common disease among women in Malaysia, with one in every 30 women being diagnosed in their lifetime; nevertheless, most women do not frequently inspect their breasts for abnormalities or attend yearly screenings after the age of 40.[1] Men, on the other hand, are becoming more likely to have breast cancer. According to one study, male breast cancer incidence increased by 26% between 1973 and 1998, whereas female cancer incidence surged by 52%.[2] Female breast cancer is more frequent than male breast cancer. Therefore, the public and healthcare professionals are more aware of it. Male breast cancer, contrarily, remains notably unknown to the public and healthcare professionals.[3]

The prevalence of breast cancer is projected to rise as the populace ages, and factors associated with lifestyle choices such as a high-fat diet, alcohol consumption, and restricted breastfeeding.[4] Malaysian women are diagnosed with breast cancer at a younger age than those in Western nations.[5] Younger generation in Malaysia have more high-risk lifestyles, which increase the risk of breast cancer, whereas older generations have lower-risk lifestyle factors, such as more breast-feeding and lower urbanization, and this trend lowers the effect risk of postmenopausal breast cancer.[5]

Breast cancer treatment options include surgery, radiation, and systemic therapy.[6] Despite the expanded survival rates reported by breast cancer patients, the treatment sequel has adverse effects such as decreased functional ability, fatigue, depression, upper limb lymphedema, and impairments in upper extremity strength and range of motion. Such negative effects eventually contribute to reductions in health-related quality of life.[7] Many initiatives have been put in place to enhance breast health.[5] The Patients quality of life and emotional state has been enhanced by physical exercise.[8] Implementing various exercise models, group work, social activities, including Pilates have been beneficial for breast cancer patients.[9] Despite a lack of scientific evidence, Pilates has been endorsed for the rehabilitation of breast cancer survivors.[9]

Pilates is a low-impact workout that aims to develop muscles while additionally enhancing posture stability and flexibility. The primary objective of Pilates is to strengthen the core. Still patients should expect to notice an increase in muscle bulk in their arms and legs as a result of using their extremities to regulate the core, which can be beneficial in female breast cancer patients.[10] A previous study by Zengin et al., (2017) has highlighted that rehabilitation of breast cancer therapy utilizing Pilates exercise, specifically targeting upper extremity functions, has excellent positive benefits such as range of motion than a home exercise program.[11] Similarly, another study has demonstrated the improvement in range of motion following Pilates treatment.[12] Pilates is swiftly gaining recognition as a fitness approach across the world.[13] However, there remained a lack of breast cancer awareness and understanding, in addition to many fallacies concerning etiology, risk factors, and breast cancer management.[14] Hence, this study is focusing on determining the knowledge and awareness of Pilates in breast cancer rehabilitation among physiotherapists in Malaysia.

Methodology

A cross-sectional study design was used, using convenience sampling. A total of 113 physiotherapists have completed the survey in this study. The study includes (i) certified Malaysian Physiotherapists with working experience of more than 5 years (ii) between the age of 20 to 55 years. Meanwhile, physiotherapist who aren't treating cancer patients were excluded from this study. All participants were informed on the study purpose and procedures before data collection, and written informed consent was taken. Participants were assured of anonymity. This study was approved by the Research and

Ethics Committee of INTI International University.

A structured questionnaire on the knowledge and awareness of Pilates was distributed to all the participants. Before that, the content validity of the questionnaire was established by distributing it to the three experts in this area. After validation, the questionnaire is designated into Google form to convenient the participants and the researchers. All the questions were formed based on the simplicity and previous studies. The questionnaire comprises four sections, with the (i) personal information, socio-demographic information, years of clinical experience, and clinical field specialty, (ii) the knowledge on the Pilates (iii) awareness on the application of Pilates in the rehabilitation of cancer patients, and (iv) implementation of Pilates in treatment of breast cancer patients. The questionnaire was distributed in English.

Data were analyzed by using the statistical software package SPSS (Version 24.0). Descriptive statistics were used to report the awareness and knowledge level of Physiotherapists in using Pilates as a treatment for breast cancer patients.

Results

Demographic characteristics

A total of 113 were recruited after screening for eligibility. Among 113 study participants, 66.37% and 32.74% of study participants were female and male, whereas half of the participants were 26-30 years. More than half of the participants had a bachelor degree in physiotherapy. Only a small portion of the participants,12.39% have practice on women's health, whilst the majority of the physiotherapist are involved in treating musculoskeletal problems. Moreover, ha lf of the participants possess a cumulative working experience of 2 to 4 years and 35.40% worked as junior physiotherapist.

Awareness of Pilates in breast cancer rehabilitation

Table 2 shows that 46% of females are aware of Pilates, while only 8.85% of males are aware of Pilates. However, most of the participants (45.1%) are unaware that Pilates can manage breast cancer-related symptoms. When questioned about the experiences in treating breast cancer patients using Pilates, most of the participants (81.4%) did not experience treating breast cancer patient using Pilates. Only 14 participants (12.4%) had treated breast cancer patients using Pilates.

Knowledge of Pilates

Interestingly, 68.14%, stated that endurance is not one of the core principles of the Pilates method. Besides, 69.03% knew that Pilates takes as little as 10 minutes a day to perform. Over 67% of the participants believed that the advantages of doing Pilates on a reformer, allows users to advance and provides intensive strength training compared to mat constantly. In addition, over 76% of them know that herniated disk and pregnancy are not contraindications for Pilates. However, more than half of the participants, 61.95%, are conscious that unstable blood pressure is contraindicated to perform Pilates. Only a tiny proportion recognized the following contraindications: risk of blood clots 39.8% and severe osteoporosis 46.0% (Table 3).

Implementation of Pilates in women's health and breast cancer

Results from Table 4 showed that 36.3% strongly agreed that Pilates should be implemented in hospitals or clinics to manage breast cancer-related musculoskeletal problems. However, very small proportion of 1.8% was strongly disagreed with the statement mentioned above. Still, over 40% agreed that it is vital to provide courses or education to improve physiotherapist's awareness of Pilates in women's health, while only 1.8% of participants strongly disagree. Although a substantial number of participants 77%, are interested in pursuing Pilates workshop in the near future, majority 89.4% of them selected manual therapy and lifestyle education 71.7% as a treatment option for breast

cancer in approaching period time, while hardly 14.2% of participants opted dry needling as a treatment for breast cancer.

Discussion

This study aims to determine the awareness and knowledge of Pilates in improving female breast cancer patients' functional capacity and upper extremity functions among the physiotherapists in Malaysia. Our study result demonstrates that nearly half of the participants (45.13%) are unaware that breast cancer musculoskeletal problems can be treated using Pilates. The response rate in this survey was 113 participants in one month period of time, which is relatively a good response compared to an earlier study conducted on 'Knowledge, attitudes, and barriers towards evidence-based practice among physiotherapists in Malaysia' with the reply of 102 participants in 2 months period.[15]

In this study, 59.29% of respondents mentioned that they had assessed, and treated problems related to breast cancer, such as pre-mastectomy and post-mastectomy. Knowledge about risk factors of breast cancer was further investigated. The results revealed participants have a low-to-moderate understanding of risk factors of breast cancer. Most of the participants (94.7%) recognized family history as a risk factor. The finding of this survey is similar to that of a previous study in India accounts for 93.9%.[16] Surprisingly most of the participants in the present study are not aware of certain risk factors like high-fat diet, working-class women, larger breasts and lack of breastfeeding. This report also coincides with the previous study, in which most of the women were not sure whether high fat/low consumption of fruit and vegetables could increase the risk of breast cancer.[17] The proportion of knowledge about smoking and alcohol consumption as a risk factor for breast cancer was 53.1% and 29.2% in this study, and the figure was significantly high at 68% and 56% in a survey conducted among female students in Malaysia 2016.[18] 59.3% of participants are aware that aging is one of the contributing risk factors for breast cancer. Nonetheless, there is a disparity in figure 65.4% in the prior study in Malaysia.[19] Although only 25 percent of interviewees in the study conducted in Australia identified growing age as a risk factor for breast cancer, general practitioners had limited knowledge of some aspects of risk factors for breast cancer.[20] It has been noted that healthcare practitioners, including nurses, are not adequately trained about risk factors, risk assessment and prevention of cancer, despite rigorous efforts to strengthen medical education in developing countries.[21] Apart from the above reports, the knowledge on risk factors of breast cancer was found be very minimal . Only 3% are familiar with risk factors among female health care workers in Nigeria.[22]

In an earlier study, 97.8% of participants attest that a lump in the armpit or breast is the most common breast cancer sign and symptoms.[18] However, this percentage is observed lower 81.4% in the current study. In contrast, numerous participants (more than 80%) among university students in Angola shared the misconception that lumps in cancerous breasts are painful.[23] Discharge, pain or soreness, changes in the shape of the breast and lymphedema were well recognized 77% by the participants in this study. A divergent and contrary report was noted in the past study with poor knowledge on early signs of breast cancer among medical students was identified in Pakistan. However, the massive percentage of 90% of medical students were aware of the presence of lump as a sign of breast cancer.[24] Furthermore, the greater proportion of participants in the present study were known about lymphedema as one of the primary symptoms of breast cancer. This finding is homogenous with the past research in 2014 in which 82.5% of participants were aware that they might develop lymphedema.[25] Meanwhile, minorities of the participants recognized sudden weight loss, limited upper limb range of motion,

decreased functional capacity and reduced upper limb strength as signs and symptoms of breast cancer. Given the increased rates of survival for women diagnosed with breast cancer, several of these conditions are usually identified as a side effect of breast cancer, which can include one or more impairments. [26,27]

The majority of females in this study are aware of Pilates in breast cancer rehabilitation, while only a minority of males are aware. This is because more female instructors could have made Pilates more appealing to female students. Thus, these variables also contributed to the naive assumption that Pilates is only targeted at a female audience, but there is nothing in Pilates that makes it more for women than for men and not gender-based in its benefits.[28] Whereas Joseph Pilates, the founder of the method, actually initially started his work with men.[29] Nowadays, in fitness, the Pilates technique has been well known as cross-training and is practiced by athletes and celebrities including Lebron James, Tiger Woods and Kobe Bryant to retain core strength, flexibility and function.[30]Despite Pilates is widely used in dancers it is gaining its popularity in physiotherapy rehabilitation.[31]

Participants who heard about Pilates were quizzed about Pilates and it's shown that the results revealed a low-to-moderate understanding about Pilates. In this study, 76.11% of physiotherapist reported that pregnancy is not contraindicated for Pilates, which corroborates the findings from a past study that physiotherapist is conscious in modifying the technique that suits for the patients with different medical problems. This matched with the guidelines from The American College of Obstetricians and Gynecologists.[32] Furthermore, the therapist in the current study realized that Pilates is beneficial in strengthening the muscle groups. Strengthening the gluteus muscle can reduce the symptoms in low back pain was acknowledged is in line with the present study.[33] This result also supports that the therapist level of knowledge on Pilates 77.8% was adequate in managing the disc lesions. Another researcher recommended that future studies are needed to allow various exercises, populations and ages to understand the effects of the Pilates principles.[34]

A large number of participants (77.88%) are interested in implementing Pilates to help breast cancer patients. 64.60% of them are eager to gain more knowledge and application of new techniques. This finding was consistent with a previous study in which the initiative to aim for improved learning and a greater standard of success was demonstrated by UKM Physiotherapy graduates from a study in Malaysia.[35] This indicated that fresh graduated Malaysian physiotherapists learn new things by updating their own expertise and drawing on their own experience. Another result showed that Malaysian physiotherapy students worked hard to look for possibilities to apply their skills during clinical placement.[36] The awareness result shows that the majority of the participants are unaware that breast cancer musculoskeletal problems can be treated using Pilates. Therefore, low awareness among Malaysian physiotherapists regarding Pilates (38.94%) and not being familiar with Pilates related to women's health (38.05%) are causing participants to lose interest in pursuing Pilates's knowledge. This report coincides with the past study on knowledge of effects of Pilates among physiotherapist and occupational therapist revealed that both the professionals have less comprehension of only 33% on the impacts of Pilates.[37]

The study found that 36.3% of participants are strongly agreed to the impression that Malaysian physiotherapists working in hospitals or clinics should be encouraged to execute Pilates in managing musculoskeletal problems arise from breast cancer. Nearly half of participants, 42.5% agreed to bring forth courses or education to create awareness regarding Pilates

in women's health and breast cancer. Researchers found that their assessment indicated that the design of the workshop assisted participants in the development of skills and built trust to adopt the observed program of practice.[38] Additionally, more than 40% of participants are reported a lack of interest in Pilates because of insufficient knowledge and unfamiliar with the techniques. The probable reason could be a paucity of workshops and courses in the field. An interactive workshop with the real patient model will aid to overcome the issue and promote the clinical psychomotor skills.[39]

Conclusion

Current study results reflect a lack of knowledge and awareness on Pilates as a rehabilitation tool for breast cancer among physiotherapists in Malaysia. We contend that these findings further highlight the need to establish a knowledge transfer session with the physiotherapist. We also believe that this study results may provide valuable data to the contemporary Pilates practitioner to broaden the scope of practice.

Acknowledgements

The authors like to thank all the participants for their voluntary participations in this study and Physical Activity Research Center (PARC), INTI.

Conflicts of Interest

The author(s) declare(s) that there is no conflict of interest.

Funding

No funding was received for this study.

Table 1. Socio-demographic Characteristics of the Participants (n=113)

Characteristic	N	%
Gender		
Female	75	66.3
Male	37	32.7
Age group (years)		
<20	2	1.77
21 – 25	23	20.3
26 – 30	57	50.4
31 – 35	18	15.9
36 – 40	10	8.85
>41	3	2.65
Highest education qualification attained		
Diploma certificate	15	13.2
Bachelor's degree	88	77.8
Master's degree	6	5.31
Area(s) of practice		
Sports	39	34.5
Musculoskeletal	67	59.2
Neurological	33	29.2
Cardiorespiratory	16	14.1
Geriatrics	28	24.7
Paediatrics	13	11.5
Women Health	14	12.3
Working experiences(years)		
2 – 4	59	52.2
5 – 9	33	29.2
10 – 14	10	8.85
15 – 20	8	7.08
>20	3	2.65
Position in the workplace		
Founder / Co-Founder	12	10.6
Director / Manager / Head of Department	14	12.3
Senior Physiotherapist	39	34.51
Junior Physiotherapist	40	35.4
Assistant Physiotherapist	3	2.65

Table 2. Awareness of Pilates in breast cancer rehabilitation (n=113)

Variables	N (%)
Awareness of Pilates	
Not aware at all	51 (45.1)
Slightly aware	24 (21.2)
Moderately aware	13 (11.5)
Strongly aware	12 (10.6)
Extremely aware	13(11.5)
Awareness on breast cancer symptoms can be treated using Pilates	
Not aware at all	51 (45.1)
Slightly aware	24 (21.2)
Moderately aware	13 (11.5)
Strongly aware	12 (10.6)
Extremely aware	13 (11.5)

Table 3. General Knowledge of Pilates (n=113)

Statements	Correct response N (%)
Endurance is not a core principle of the Pilates method	77 (68.1)
Pilates takes as little as 10 minutes a day	78 (69.0)
Advantages of doing Pilates on a reformer compared to mat	
More exercise available	76 (67.2)
Allows users to constantly advance	76 (67.2)
Provide intensive strength training	76 (67.2)
Contraindication(s) for Pilates	
Unstable blood pressure	70 (61.9)
Risk of blood clots	45 (39.8)
Severe osteoporosis	52 (46.0)
A herniated disk is not contraindication	88 (77.8)
Pregnancy is not contraindication for Pilates	86 (76.11)

Table 4. Implementation of Pilates in Women's Health and Breast Cancer

Statements	
Pilates should be enforced to perform in hospital or clinic?	
Strongly Agree	41 (36.3)
Agree	35 (31.0)
Neutral	31 (27.4)
Disagree	4 (3.5)
Strongly disagree	2 (1.8)
It is important to provide courses or education to create awareness	
Strongly Agree	46 (40.7)
Agree	48 (42.5)
Neutral	16 (14.2)
Disagree	1 (0.9)
Strongly disagree	2 (1.8)
Interest in pursuing future Pilates workshop?	
Strongly interested	46 (40.7)
Interested	41 (36.3)
Neutral	17 (15.0)
Not interested	9 (8.0)
Treatment options would you include in treating breast cancer in future?	
Manual Therapy (e.g.: joint mobilization, soft tissue release)	101 (89.4)
Pilates	71 (62.8)
Lifestyle Education	81 (71.7)
Dry Needling	16 (14.2)
Postural Training	62 (54.9)
Others	5 (4.4)

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