

ORIGINAL ARTICLE

Beliefs about the Benefits and Barriers to Physical Activity Promotion for Cancer Patients among Nurses in Malaysia

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ABSTRACT

Introduction: Physical activity (PA) can improve survival and quality of life in chronic diseases including cancer. Given the scarcity of research on nurses' beliefs that used a psychology perspective, the purpose of this study was to determine nurses' beliefs about the benefits and barriers to physical activity promotion for cancer patients at a tertiary teaching hospital in Malaysia. **Methods:** A cross-sectional study was performed on nurses (n=104) at one Malaysian tertiary teaching hospital, using a simple random sampling method. A self-administered online questionnaire was surveyed from January until March 2021. The data was analysed using Pearson correlation analysis and an independent T-test with a significant level of $p \leq 0.05$. **Results:** 80.8% of nurses perceived the benefits of physical activity promotion for improving mental health in cancer patients. Lack of time (30.8%), patients appearing tired or unwilling to cooperate (20.2%), and a lack of knowledge (16.3%) were the barriers to physical activity. There was no correlation between beliefs about the benefits of physical activity promotion and age ($p=0.908$), working experience ($p=0.982$), ward type ($p=0.666$) or the average number of cancer patients cared ($p=0.144$). **Conclusion:** Nurses' perspectives on the benefits of physical activity promotion for cancer patients support the use of planned behaviour theory for evidence-based nursing practice. There were, however, barriers to encouraging cancer patients to engage in physical activity. As a result, as a setting for health promotion, the tertiary teaching hospital must raise awareness, facilitate, and encourage nurses to engage in physical activity promotion behaviours. *Malaysian Journal of Medicine and Health Sciences* (2022) 18(4):128-134. doi:10.47836/mjmhs18.4.18

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INTRODUCTION

The World Health Organization (WHO) defined physical activity (PA) as any bodily movement that requires energy generated by skeletal muscles (1). Due to PA's numerous health and well-being benefits, all health care professionals were encouraged to promote it to their patients. Routine PA could reduce mortality risk and was an effective primary and secondary preventive method for many chronic medical diseases, including cancer (2). Worldwide, 9.6 million cancer deaths were occurring within a year (3). According to Globocan, 43837 new cancer cases and 26395 cancer deaths were reported in Malaysia (4).

Although cancer survival rates are improving, cancer treatments can have short-term, long-term, and intermediate-term side effects (5). Furthermore, these treatments may have an adverse effect on patients body composition and physical function. As a result, most

cancer patients continue to engage in insufficient PA to obtain health benefits, with their PA rates frequently being lower than those of their age-matched and cancer-free peers (6). Several studies, however, agreed that PA had been shown to reduce the likelihood of poor cancer progression and have survival benefits for a variety of cancer patient groups (7). Hence, most health and fitness organizations and professionals advocate a minimum volume of exercise that expended about 4200 kJ per week (8). Furthermore, many of the negative effects of cancer treatments may be mitigated by regular PA (9). As a result of this evidence, cancer organizations such as the American Cancer Society and Exercise and Sports Science Australia issued position statements emphasizing the importance of PA for cancer survivorship (10).

A study found that the support of others, such as nurses, could facilitate physical activity in cancer patients, and nurses are likely to be one of the most influential healthcare professional groups in promoting PA (9). However, some nurses may face difficulties because promoting PA to cancer patients is not their primary scope of practice. Nurses were generally increased in workload and lack of time reported as the primary barrier for nurses to promote physical activity (11). An

interdisciplinary approach involving nurses and other healthcare professionals such as physiotherapists or doctors allows cancer patients to continue receiving education about the benefits of PA to improve their quality of life and survival rate (12). Compared to other healthcare professionals, nurses were the most appropriate person to promote PA to their patients due to frequent contact, increased length of time spent with patients, and the greatest involvement in holistic care and rehabilitation of cancer patients (13).

Though engaging cancer patients in regular exercise can promote quality of life and reduce the risk of suffering and death, a shortage of studies looks into nurses' perception of the benefits and barriers to physical activity promotion for cancer patients to enhance patient's quality of life. Given the scarcity of research on nurses' beliefs that used a psychology perspective, the purpose of this study was to determine nurses' beliefs about the benefits and barriers to physical activity promotion for cancer patients at a tertiary teaching hospital in Malaysia.

The Theory of Planned Behavior (TPB) was used as the conceptual framework for this study because it recognizes the varied nature of the relationship affecting behavioural intentions, and frequently explains behaviour (14). The behaviour required for this study is physical activity promotion. At the same time, attitudes toward behaviour serve as an external cue for nurses under perceived behavioural control to remind them of the benefits of physical activity for cancer patients. Each of these concepts was important in predicting whether or not a person would engage in the behaviour. As a result, TPB suggests that if a person adopts a belief, it is associated with less influence, and social norms acknowledge both. Thus, this increases a person's motivation to act. The proposed model of the conceptual study framework is depicted in Figure 1.

MATERIALS AND METHODS

A cross-sectional study of nurses at a Malaysian tertiary teaching hospital in northeast Peninsular Malaysia was conducted. A sample size of 104 was calculated using a single proportion formula with a confidence level

of 1.96, precision ± 5% and anticipated population proportion of 0.060 (15). A simple random sampling technique was employed to enrol nurses in the study who worked in all medical and surgical wards. This sampling technique was used to ensure that all nurses had an equal chance of being chosen randomly (16).

The research was carried out at a tertiary teaching hospital in northeast peninsular Malaysia. The hospital committed to achieving functions as a teaching and referral hospital was chosen as the study setting. Medical and surgical nurses were included in the study because they provide multidisciplinary care (17). Nurses who provide inpatient care in the medical and surgical wards and have at least six months of clinical working experience meet the inclusion criteria. Nurses from outpatient services and obstetric units who did not have direct day-to-day contact with patients were excluded from the study because their role differed from inpatient medical and surgical nurses. After applying the inclusion and exclusion criteria, all nurses who met the criteria were entered into a random software to ensure a proportionate sample distribution across the wards and randomisation.

The questionnaire was a structured, self-administered questionnaire in English adapted with permission from published studies (9,15). The questionnaire was designed to determine nurses' beliefs of the benefits and barriers to physical activity promotion for cancer patients. Cronbach's alpha for each section in the questionnaire, i) physical activity promotion, ii) beliefs about the physical activity promotion and iii) barriers in promoting physical activity are 0.68, 0.71 and 0.74 respectively, indicating good reliability and internal consistency. In determining questionnaires appropriateness and ethical soundness, pilot testing was done with 5% of the sample size among nurses who works in out-patient clinics and did not form part of the study participants.

The questionnaire have five sections, Section A examined the socio-demographic characteristics of the participants, such as age, speciality area (medical or surgical), year of clinical working experience, and the number of cancer patients nurses cared for in a week. Section B included four questions about nurses' perceptions of physical activity promotion for cancer patients. Section C included two domains: beliefs about physical activity promotion and nurses' confidence in promoting physical activity, both of which were measured using a five-point Likert scale. Beliefs in physical activity promotion are nine items, while confidence is made up of two. Three items in Section D assessed nurses' barriers to physical activity promotion. Participants were asked to identify the three most likely barriers to promoting physical activity. The second item asked participants if they intended to promote physical activity if there was no primary barrier, and they were given two options: Yes or No. A Yes received a score of one, while No received a

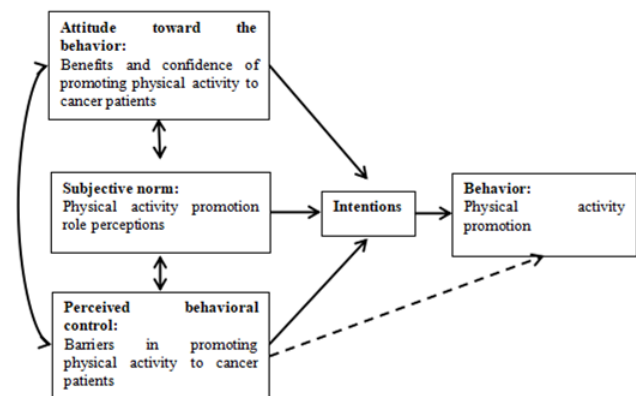


Figure 1: The proposed research model

score of zero. Finally, the third item asked participants if they intended to promote physical activity if the three primary factors were removed. Again, they were given two options: Yes or No, with the same scoring as the second item.

The institution's Human Research Ethics Committee (HREC) granted ethics approval (USM/JEPeM/20120647). Data collection took place from January to March 2021. Because of the current COVID-19 pandemic, a self-administered online questionnaire in English was created, designed, and distributed using the Google Forms platform. Following the selection of eligible participants, the researcher personally invited the nurses via the WhatsApp application. A brief introduction statement and a link for participants to post the survey were included. Instructions for completing the questionnaire online using Google Form were provided by clicking the link and the 'Continue' button and limited to one response to avoid duplicated or exaggerated data. Given the COVID pandemic and current recommendations for adhering to standard operating procedures, online surveys are the best way to collect data. The time taken to complete the questionnaires was approximately 10-15 minutes. The questionnaires were completed by 104 participants, with a 100% response rate.

The collected data was entered into SPSS version 26.0 for Windows, tested for normality distribution. Descriptive statistics were used to analyse data for a single categorical variable, including frequencies and percentages, to describe the participants' socio-demographic data. In addition, independent T-tests and Pearson correlation analysis were used to examine the association between socio-demographic variables and participants' perceptions of the benefits of physical activity promotion. The level of significance (α) was set at 0.05. It indicates strong evidence against the null hypothesis, as there is less than a 5% probability the null is correct, and the results are random. Therefore, we reject the null hypothesis and accept the alternative hypothesis (16).

RESULTS

One hundred and four (response rate = 100%) nurses completed the questionnaire online. Table I illustrates the participants' socio-demographic characteristics. The mean age of the participants was 32.98, within the age range of 25 to 55 years. The majority of the participants (79.8%) works in the medical ward, while 96.2% of survey participants had at least two years of working experience. In addition, the majority, 78.8%, of participants care for more than 10 cancer patients in an average week.

Table II depicts the promotion of physical activity among nurses. Most participants in this study (97.1%) recognised nurses' role in promoting physical activity

Table I: Socio-demographic characteristics of participants (n=104)

Variables	Mean (SD)	n	%
Age (Years)	32.98 (5.66)		
20 – 29		27	26.0
30 – 39		64	61.5
40 – 49		10	9.6
50		3	2.9
Range	25-55		
Speciality area			
Medical		83	79.8
Surgical		21	20.2
Years of clinical working experiences	9.75 (6.04)		
Less than two years		4	3.8
Two years and above		100	96.2
Range	1-29		
Care for cancer patients in an average week	7.03 (11.63)		
Ten and less		82	78.8
More than 10		22	21.2
Range	0 – 80		

Table II: Nurses' Beliefs of Physical Activity Promotion for Cancer Patients (n=104)

Variables	n	%
Physical activity promotion role perceptions		
Nurse	101	97.1
Physiotherapist	73	70.2
Oncologist	60	57.7
Dietitian/Nutritionist	25	24.0
Don't know	1	1.0
Promoting physical activity cancer treatment stage		
Pre-treatment	70	67.3
During treatment	43	41.3
Post-treatment	62	59.6
Every stage	51	49.0
Don't know	4	3.8
Method of physical activity promoting		
Verbal advice	87	83.7
Literature/ Pamphlets	71	68.3
Refer to an exercise specialist	50	48.1
Perform directly on the patient	55	52.9
Recommendation in promoting physical activity to the cancer patient		
Frequency	57	54.8
Minutes per session	26	25.0
Type of activity	84	80.8

among cancer patients. More than half of those surveyed (67.3%) advocate for physical activity during pre-cancer treatment. Almost half of the participants (49.0%) did promote physical activity at all stages of treatment. In comparison, more than three-quarters (83.7%) in this study believe there are benefits to promoting physical activity through verbal advice and would recommend the type of activity to a cancer patient (80.8%).

Regarding the benefits of physical activity for cancer patients, 52.9% of participants (n=55) agreed that physical activity promotion could improve health-

related QoL (see Table III). However, 45.2% of participants (n=47) strongly disagree that encouraging physical activity has no benefit for cancer patients. Table IV depicts nurses' barriers to promoting physical activity to cancer patients, one being the most likely.

Table III: Nurses' Beliefs of Benefits of Physical Activity Promotion (n=104)

Questions	Strongly Disagree	Disagree	Un-sure	Agree	Strongly Agree
	n (%)	n (%)	n (%)	n (%)	n (%)
Beliefs physical activity able to provide benefits for cancer patients:					
<i>Improved health-related QoL</i>	12 (11.5)	3 (2.9)	10 (9.6)	55 (52.9)	24 (23.1)
<i>Improved weight management</i>	12 (11.5)	6 (5.8)	19 (18.3)	52 (50)	15 (14.4)
<i>Improved mental health</i>	15 (14.4)	2 (1.9)	2 (1.9)	53 (51)	32 (30.8)
<i>Improves ADL</i>	15 (14.4)	2 (1.9)	4 (3.8)	49 (47.1)	34 (32.7)
<i>Reduce the risk of cancer recurrence</i>	12 (11.5)	4 (3.8)	35 (33.7)	42 (40.4)	11 (10.6)
<i>Reduce the risk of other chronic diseases</i>	9 (8.7)	7 (6.7)	19 (18.3)	53 (51)	16 (15.4)
<i>Reduce tumour-specific comorbidities</i>	11 (10.6)	9 (8.7)	38 (36.5)	37 (35.6)	9 (8.7)
<i>Reduced fatigue</i>	13 (12.5)	11 (10.6)	19 (18.3)	48 (46.2)	13 (12.5)
<i>No benefits</i>	47 (45.2)	31 (29.8)	17 (16.3)	9 (8.7)	0 (0)
Confident in promoting physical activity:					
<i>Giving general advice to cancer patients on physical activity</i>	13 (12.5)	4 (3.8)	16 (15.4)	56 (53.8)	15 (14.4)
<i>Discussing physical activity with cancer patients</i>	12 (11.5)	5 (4.8)	16 (15.4)	56 (53.8)	15 (14.4)

Lack of time is chosen as the primary barrier to physical activity promotion by 30.8% (n=32), making it the first barrier to physical activity promotion. Lack of knowledge was chosen as the secondary barrier to physical activity promotion by 27.9% (n=29) of participants, ranking lack of knowledge as the second barrier to physical activity promotion. No participant selected "My job" as a barrier to physical activity promotion. Patients who appear tired or do not cooperate rank the third barrier to physical activity promotion, accounting for 24.0% (n=25) of participants.

A Pearson's correlation test and an independent T-test were used to examine the relationship between socio-demographic characteristics and beliefs about the benefits of physical activity promotion. The findings show that socio-demographic data have a very weak or negligible correlation with beliefs about the benefits of physical activity promotion. In addition, our findings show no statistically significant difference in mean nurses' beliefs about the benefits of physical activity promotion between medical and surgical wards (Table V).

Table IV: Nurses' Barriers of Physical Activity Promotion (n=104)

Questions	Primary Barrier (1)	Second Barrier (2)	Third Barrier (3)	Barrier Ranking
	n (%)	n (%)	n (%)	
From the list of factors below, please indicate the THREE most likely to prevent you from promoting PHYSICAL ACTIVITY to your cancer patients [with being one (1) the most likely]				
<i>Lack of time</i>	32 (30.8)	11 (10.6)	20 (19.2)	1
<i>Risk to patient</i>	14 (13.5)	17 (16.3)	11 (10.6)	
<i>Lack of adequate support structures</i>	9 (8.7)	20 (19.2)	18 (17.3)	
<i>Lack of knowledge</i>	17 (16.3)	29 (27.9)	16 (15.4)	2
<i>Lack of expertise</i>	4 (3.8)	5 (4.8)	13 (12.5)	
<i>I do not promote physical activity</i>	5 (4.8)	0 (0)	0 (0)	
<i>Not my job</i>	0 (0)	0 (0)	0 (0)	
<i>I do not have barriers to promoting physical activity</i>	2 (1.9)	5 (4.8)	1 (1)	
<i>Patients look tired or not give co-operation</i>	21 (20.2)	17 (16.3)	25 (24)	3
Questions			YES n (%)	NO n (%)
I would ALWAYS promote physical activity to my cancer patients, if:				
The PRIMARY BARRIER indicated in the questions above was removed			99 (95.2)	5 (4.8)
All THREE selected barriers indicated in the questions above were removed			103 (99)	1 (1)

Table V: Correlation and Association Between Socio-demographic Characteristics and Nurses' Beliefs on Benefits of Physical Activity Promotion (n=104)

Characteristics	Mean (SD)	T statistic (df)	r-value	p-value
Age			-0.011	0.908*
Working experience			-0.002	0.982*
Type of ward				0.666**
<i>Medical</i>	32.30 (8.29)	-0.432 (102)		
<i>Surgical</i>	33.19 (8.93)			
The average number of cancer patients care in a week			0.144	0.144*

*Pearson Correlation

**Independent Samples T-test

Notes: If the significant value (p ≤ 0.05), the null hypothesis is rejected.

DISCUSSION

The study used the Theory of Planned Behaviour (TPB) as the conceptual framework to assess nurses' beliefs about the benefits and barriers to physical activity promotion for cancer patients at a Malaysian tertiary teaching hospital. The findings show that the majority (97.1 per cent) of nurses in this tertiary teaching hospital recognised nurses as the primary person responsible

for encouraging physical activity in cancer patients. However, when we compared our findings to previous studies, we discovered that Keogh et al.'s study had a lower percentage (9). The difference could be attributed to the nurses' different specialities. The probable reason could be that nurses have been identified as critical health care professionals for delivering nutrition, diet, and lifestyle advice to cancer patients (18).

In addition, there has been less research on oncology nurses' perspectives in Malaysia. However, current and previous research shows that nurses are the most likely to be identified as the primary person responsible for promoting physical activity compared to other professions. Hence, as mentioned by Roberts et al., this may refer to the fact that the elements of the Recovery Package are typically delivered by Clinical Nurse Specialists (CNS) or experienced registered nurses (18). As a result, clinical knowledge and skills are critical in improving attitudes and perceptions toward physical activity, advises (18).

The present study shows that nurses promote physical activity to cancer patients at various stages of treatment, including pre-treatment, during treatment, and post-treatment, with a lower percentage than in a previous study of Australasian oncology nurses, who had 86.3 per cent, 70.6 per cent, and 67.2 per cent, respectively (9). The plausible explanation could be because oncology nurses care for cancer patients the majority of the time. Therefore, they are more effective in dealing with cancer patients' problems such as lack of motivation before treatment, cost issues during treatment, and the method to persuade cancer patients to return to physical activity after treatment (19).

Furthermore, according to Keogh et al., fewer nurses will promote physical activity to cancer patients at all stages of cancer treatment. In contrast, our study recorded a higher percentage of 49 per cent of nurses (9). Therefore, oncology nurses may express concerns about the potential safety of the recommendations they provided, which is a plausible explanation. As a result, patients' reports of side effects at every stage of cancer treatment will be considered, and the advice they provide may be excessively cautious (18).

Our study results show that 83.7 per cent of these nurses verbally promote physical activity to cancer patients. Therefore, the probable explanation could be related to the fact that the techniques used to promote physical activity verbally are diverse. In addition, most healthcare providers have well-developed communication skills to consult patients, as Kieft et al. mentioned (20).

A previous Canadian study found that only 6% of oncologists or oncologist health care providers recommended the type of physical activity to patients. In contrast, our findings revealed that 84 per cent of

medical or surgical wards nurses would recommend the type of physical activity to cancer patients (17). The differences could be explained by the fact that most oncology nurses were unaware that there was a body of research in physical activity promotion guidelines (19). The present study shows a relatively high rate of physical activity promotion as reported by nurses working in surgical or medical wards. The findings were consistent with their physical activity promotion beliefs, with 85.6 per cent agreeing or strongly agreeing that a strong evidence base exists for physical activity promotion to cancer patients.

This result is higher when compared to a previous study conducted among Australasian oncology nurses (9). The probable explanation could be related to medical or surgical wards containing patients with various diagnoses, whereas oncology nurses are mostly employed in oncology wards. In addition, physical activity has been shown to improve overall disease survival rates (21).

Our findings show that the most important benefits for physical activity promotion that nurses' beliefs agreed or strongly agreed on were improved patient mental health, which received 81.8 per cent agreement. The likely explanation could be because physical activity has been shown to reduce fatigue, depression, and anxiety in cancer patients. In addition, patients' mental health could be improved by reducing the negative effects of cancer treatments (22). The findings show that no participants strongly agree that there are no benefits to promoting physical activity among nurses. Hence, the probable explanation could be related to the nurses' beliefs about the benefits of physical activity promotion for their patients. Evidence-based reviews have demonstrated significant physical activity-related improvements in patients' physical function, activities of daily living, reduced risk in other chronic diseases, and improved aspects of quality of life and mental health (9).

The current study also aimed to identify primary barriers nurses in medical and surgical wards may face when promoting physical activity to cancer patients. None of the participants mentioned my job as a barrier to promoting physical activity. However, almost half of the respondents cited barriers to physical activity promotion. The primary barriers were a lack of time, a lack of knowledge, and patients who appear tired and refuse to cooperate. Because of their heavy workload, nurses may not have enough time to promote physical activity to cancer patients, explaining these findings (23). As a result, several tasks and assignments have been transferred to nurses with lower qualifications to work as efficiently and productively as possible.

Further explanation is provided when there are unclear guidelines for physical activity promotion, resulting in nurses having less accurate knowledge because

nurses are concerned about the safety of promoting physical activity to cancer patients. Nurses also lack communication skills training, so they may not know how to advise cancer patients best (18). The American College of Sports Medicine (ACSM) Round Table on Exercise Guidelines for Cancer Survivors, on the other hand, concluded that exercise training is safe during and after cancer treatments (12).

This study discovered no significant correlation between all socio-demographic data and beliefs about the benefits of physical activity promotion, which has become the norm among all nurses of all ages to promote physical activity to all patients to improve patient treatment outcomes (19). Furthermore, the findings can be explained by a positive attitude toward physical activity promotion benefits that were unaffected by years of practice (9). The current study backs up the theory of planned behaviour in identifying nurses' beliefs about promoting physical activity in cancer patient care and evidence-based nursing practice (14, 23). The result could also be explained by the fact that beliefs about the benefits of physical activity promotion are generally similar among nurses who work in medical or surgical wards, as the job scope, stress level, and fatigue level are nearly identical (22).

Previous research found that many cancer patients were able to improve oncologists' and oncology health care providers' attitudes and practises toward health promotion activities in terms of the number of cancer patients cared for in a week (17). According to Park et al., a causal link between physical activity promotion and a positive outcome has become a clearer view for oncologists and oncology health care providers when caring for cancer patients (12).

Given the numerous potential limitations, the results of this study should be considered. One limitation is its cross-sectional design. While all hypotheses have been proposed based on related theories and data found in the literature, it is impossible to conclude causal relationships between variables due to the lack of a longitudinal design. Furthermore, the study is limited to a single study setting. As a result, the generalizability of the findings to the general population will be hampered.

CONCLUSION

The findings revealed the nurses' beliefs of the advantages of physical activity promotion for cancer patients. The current study supports the theory of planned behaviour in identifying nurses' beliefs about promoting physical activity in cancer patient care and evidence-based nursing practice. However, there were obstacles to encouraging cancer patients to engage in physical activity. As a result, the tertiary teaching hospital, as a setting for health promotion, must raise awareness, facilitate, and encourage nurses to engage in physical activity behaviours.

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