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SOCIAL COGNITIVE PREDICTORS OF PHYSICAL ACTIVITY AMONG HEALTH WORKERS

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By

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Background: In Malaysia, about 1 in every 3 adults are inactive. Health workers do not perform better in physical activity although they are seen as role models. Understanding of social cognitive predictors is important to motivate them to initiate and maintain regular physical activity.

Objective: The study aimed to determine social cognitive predictors of physical activity among health workers.

Methodology: An analytical cross sectional study was done among 310 health workers recruited by simple random sampling using validated self-administered questionnaires. Hierarchical multiple regression analysis was used to determine the predictors.

Results: The respondents spent 141 minutes (IQR=182.7) in total physical activity per day. Leisure time physical activity contributed to 16.6% of the total physical activity, with the remaining were non-leisure time physical activities during occupational, household chores and transportation. Leisure time physical activity had significant positive correlation with goal setting ($r=0.344$, $p<0.001$), self-efficacy ($r=0.283$, $p<0.001$), friends support ($r=0.305$, $p<0.001$), outcome expectation ($r=0.284$, $p<0.001$), family support ($r=0.193$, $p=0.001$) and male gender ($p=0.002$), while had significant negative correlation with barriers ($r=-0.256$, $p<0.001$) and present of family history of medical illness ($p=0.029$). Hierarchical multiple regression analysis found that 23.0% (adjusted $r^2 = 0.218$, $p=0.029$) of variance in leisure time physical activity was explained by social cognitive predictors with goal setting ($r^2=0.118$, $p< 0.001$), barriers ($r^2=0.046$, $p<0.001$), self-efficacy ($r^2=0.033$, $p<0.001$), friend support ($r^2=0.021$, $p=0.004$) and outcome expectation ($r^2=0.012$, $p=0.029$). Gender added an additional of 1.8% of the variance ($r^2=0.018$, $p=0.007$).

Conclusion: Social cognitive predictors are useful to explain leisure time physical activity. The findings can be used in development of intervention to encourage behavioural change.

Keywords: physical activity, social cognitive predictors, health workers

Abstrak disertasi yang dikemukakan kepada Jabatan Kesihatan Komuniti,
Universiti Putra Malaysia sebagai memenuhi keperluan untuk
Ijazah Sarjana Kesihatan Awam

FAKTOR PERAMAL SOSIAL KOGNITIF YANG MEMPENGARUHI AKTIVITI FIZIKAL DI KALANGAN PEKERJA KESIHATAN

Oleh

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Latar belakang: Di Malaysia, 1 dalam setiap 3 orang dewasa adalah tidak aktif. Pekerja kesihatan tidak lebih aktif dalam aktiviti fizikal walaupun selalu dianggap sebagai contoh. Memahami faktor-faktor peramal sosial kognitif adalah penting supaya dapat memberikan motivasi kepada mereka dalam memulakan dan meneruskan aktiviti fizikal.

Objektif: Objektif kajian ini adalah untuk menentukan faktor-faktor peramal sosial kognitif dalam aktiviti fizikal di kalangan pekerja kesihatan.

Metodologi: Kajian keratan rentas analitikal dijalankan di antara 310 orang pekerja kesihatan yang dipilih melalui pensampelan rawak ringkas dengan menggunakan soalan kaji selidik yang disahkan. Analisis pelbagai regresi secara hierarki telah digunakan untuk menetukan faktor-faktor peramal.

Keputusan: Responden menggunakan sebanyak 141 minit (IQR=182.7) dalam aktiviti fizikal seharian. Aktiviti fizikal waktu lapang hanya menyumbang kepada 16.6% daripada jumlah aktiviti fizikal, dan selebihnya daripada aktiviti fizikal bukan waktu lapang, iaitu semasa kerja bergaji, kerja rumah dan pengangkutan. Aktiviti fizikal waktu lapang mempunyai korelasi positif yang signifikan dengan penetapan matlamat ($r=0.334$, $p<0.001$), efikasi diri ($r=0.283$, $p<0.001$), sokongan kawan ($r=0.305$, $p<0.001$), kesan jangkaan ($r=0.283$, $p<0.001$), sokongan keluarga ($r=0.193$, $p=0.001$) dan kaum lelaki ($p=0.002$), manakala mempunyai kolerasi negative yang signifikan dengan halangan ($r=-0.256$, $p<0.001$) dan sejarah keluarga berpenyakit ($p=0.029$). Analisis pelbagai regresi secara hierarki menunjukkan sebanyak 23% (r^2 selaras=0.218, $p=0.029$) variasi dalam aktiviti fizikal waktu lapang dapat diterangkan oleh faktor peramal sosial kognitif, iaitu penetapan matlamat ($r^2=0.118$, $p< 0.001$), halangan ($r^2=0.046$, $p<0.001$), efikasi diri ($r^2=0.033$, $p<0.001$), sokongan kawan ($r^2=0.021$,

p=0.004) dan kesan jangkaan (r^2=0.012, p=0.029). Pembolehubah jantina menyumbangkan 1.8% lagi dalam variasi aktiviti fizikal waktu lapang.

Kesimpulan: Faktor peramal sosial kognitif berguna untuk menerangkan variasi aktiviti fizikal waktu lapang. Hasil kajian ini boleh digunakan dalam perkembangan program intervensi untuk menggalakkan perubahan tingkah laku.

Kata kunci: Aktiviti fizikal, faktor peramal sosial kognitif, pekerja kesihatan

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I certify that a Dissertation Examination Committee has met on 3rd August 2017 to conduct the final examination of Tan Hooi Shyuan on her dissertation entitled "Social cognitive predictors of physical activity among health workers" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U. (A) 106] 15 March 1998. The Committee recommends that the student be awarded the Master of Public Health.

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This is to confirm that:

- the research conducted and the writing of this dissertation was under our supervision;
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LIST OF ABBREVIATIONS

BMI	Body Mass Index
CI	Confidence Interval
HEPA	Health Enhancing Physical Activity
GPAQ	Global Physical Activity Questionnaire
IPAQ	International Physical Activity Questionnaire
LTPA	Leisure Time Physical Activity
M	Mean
MANS	Malaysian Adult Nutrition Survey
Mdn	Median
NCD	Non-Communicable Disease
NLTPA	Non-Leisure Time Physical Activity
NHMS	National Health and Morbidity Survey
PA	Physical Activity
SCT	Social Cognitive Theory
WHO	World Health Organisation

CHAPTER 1

INTRODUCTION

1.1 Background

Physical inactivity is the fourth leading risk factor for global mortality which contributes to 6% of deaths (World Health Organisation, 2009). Furthermore, physical inactivity increases the risk of non-communicable diseases (NCD), mainly coronary heart disease, type 2 diabetes, breast and colon cancers (Lee et al., 2012). In recognising the detrimental consequences of physical inactivity, World Health Organisation (WHO) aimed to have 10% relative reduction in physical inactivity prevalence by 2025 (World Health Organisation., 2013).

Physical inactivity is defined as failure to meet the minimum physical activity (PA) level recommended by World Health Organisation. Adult aged 18 to 64 years old are recommended to participate in moderate intensity aerobic PA for at least 150 minutes per week, or at least 75 minutes of vigorous intensity aerobic PA per week, or equivalent combination of both moderate and vigorous intensity activity (World Health Organisation, 2010). PA includes any activity that increases the energy expenditure, which could be done as part of occupation, household chores, transportation, or leisure time activity such as sport, game and planned exercise.

Despite various efforts in promoting PA, physical inactivity remains a public health concern. Worldwide, approaching one third or 31.1% of adults aged 15 years and above are physically inactive (Hallal et al., 2012). In Malaysia, the National Health and Morbidity Survey (NHMS) 2015 reported that 33.5% of adults aged 16 years and above were physically inactive (Institute for Public Health, 2015). With the rising prevalence of obesity and non-communicable diseases, physical inactivity as the main risk factor becomes even more relevant now. Therefore, prompt actions need to be taken to reduce physical inactivity in Malaysia.

Understanding the causes of PA behaviour or its predictors is essential for development and improvement of public health intervention in promoting regular physical activity. The complex PA behaviour is best to be studied by using a behavioural model. Bandura's social cognitive theory provides a useful framework to explain PA behaviour and has been tested across numerous populations (Mesters, Wahl, & Keulen, 2014; Young, Plotnikoff, Collins, Callister, & Morgan, 2014). The core constructs of social cognitive theory (SCT) are self-efficacy, outcome expectations, goals setting, barriers, family and friends support.

1.2 Problem Statement

In Penang state, the prevalence of physical inactivity increased from 19.9% in 2011 to 25.5% in 2015 as reported in NHMS (Institute for Public Health, 2011, 2015). The survey also revealed a worrying situation whereby 33.9% of government and semi-government employees were inactive (Institute for Public Health, 2015). Healthy workers are invaluable asset for an organisation. Poor health among health workers not only affected the individuals, but gave negative impact to the health system that safeguard population health (Blake & Harrison, 2013). Arvidson et al (2013) reported that higher level of leisure time physical activity was associated with improved work ability among workers in Sweden. Health workers are seen as role models in practicing regular PA. It was noted that physical activity habits of doctors influenced their counselling practice whereby physically active doctors were more likely to offer exercise counselling to patients (Lobelo, Duperly, & Frank, 2009). WHO also launched a healthy workplace initiative, "Walk the Talk", at WHO headquarters and regional offices in 2016 to promote healthy lifestyles includes PA while reflecting the commitment of WHO to set an example (World Health Organisation, 2017).

However, previous study done in a Malaysia university medical center showed that the prevalence of physical inactivity among the health worker respondents was 35.2% (Jamil et al., 2016). This was even higher than the prevalence of physical inactivity in Malaysia general population with 33.5% (Institute for Public Health, 2015). Another study among health workers working in a hospital in Malaysia showed high prevalence of obese (59%) and overweight (24%) which was significantly associated with poor physical activity (Ayiesah, Leonard, Vijaykumar, & Mohd Suhaimy, 2013).

In Malaysia, many researches have been conducted to study the sociodemographic characteristics of physical activity (Chan et al., 2014; Cheah & Poh, 2014; Lian, Bonn, Han, Choo, & Piau, 2016). However, little studies were done to address the social cognitive variables of PA, especially among health workers, which could explain the behaviour from another perspective.

1.3 Research Questions

i. Is there any correlation between physical activity and sociodemographic, health status, self-efficacy, outcome expectation, goal setting, barriers, family and friends support among health workers?
ii. What are the social cognitive predictors of physical activity among health workers?

1.4 Objectives of Study

1.4.1 General Objective

To determine social cognitive predictors of physical activity among health workers

1.4.2 Specific Objectives

i. To describe the sociodemographic, health status, self-efficacy, outcome expectation, goal setting, barriers, family and friend support of physical activity among health workers.
ii. To measure the total physical activity among health workers.
iii. To measure the non-leisure time physical activity among health workers.
iv. To measure the leisure time physical activity among health workers.
v. To identify the association between total physical activity and sociodemographic, health status, and social cognitive constructs (self-efficacy, outcome expectation, goal setting, barriers, family and friend support).
vi. To identify the association between non-leisure time physical activity and sociodemographic, health status, and social cognitive constructs (self-efficacy, outcome expectation, goal setting, barriers, family and friend support).
vii. To identify the association between leisure time physical activity and sociodemographic, health status, and social cognitive constructs (self-efficacy, outcome expectation, goal setting, barriers, family and friend support)
viii. To determine the social cognitive predictors of total physical activity among health workers.
ix. To determine the social cognitive predictors of non-leisure physical activity among health workers.
x. To determine the social cognitive predictors of leisure physical activity among health workers.

1.5 Hypothesis

H_1: There is a significant association between total physical activity and sociodemographic, health status, self-efficacy, outcome expectation, goal setting, barriers, family and friends support among health workers.
H_2: There is a significant association between non-leisure time physical activity and sociodemographic, health status, self-efficacy, outcome expectation, goal setting, barriers, family and friends support among health workers.
H_3: There is a significant association between leisure time physical activity and sociodemographic, health status, self-efficacy, outcome expectation, goal setting, barriers, family and friends support among health workers.

1.6 Definition of Terms

1.6.1 Social Cognitive Predictors

Social cognitive predictors in this study referred to a set of constructs described in the Bandura's social cognitive theory of health behaviour (Bandura, 2004).

a) self-efficacy that one can have control over PA
b) outcome expectation or the expected costs and benefits in performing PA
c) Goal setting in doing PA
d) Barriers in carrying out PA
e) family and friend support in involving PA

1.6.2 Physical Activity

According to Caspersen, Powell, & Christenson (1985), PA is defined as "any bodily movement produced by skeletal muscles that results in energy expenditure". PA includes activities of daily living, from occupational, household chores, transportation, or leisure time activity such as games, sports or exercises. Exercise is a subset of PA characterised by planned, structured and repetitive activity in order to improve or maintain health and physical fitness.

1.6.3 Health Workers

Health workers are defined as "all people whose job are to protect and improve the health of their communities" (World Health Organisation, 2006). There are two groups of health workers. The first group are health service providers who deliver health services. The second are health management and support workers who do not engage directly in the provision of service.

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