

Conference Paper

Determinants of Physical Activity Among Southeast Asian Adults: A Systematic Review

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Abstract

Regular physical activity provides a lot of benefit to maintain good health and reduce the risk of non-communicable diseases. Recently Southeast Asia faces an epidemic of chronic non-communicable disease that responsible for 60% of deaths in the region. Physical inactivity has been reported as one of the causes related to non-communicable disease in adults. Research about determinants become as the first attempt to design intervention on physical activity. The attention to this topic has been widely spread in western countries, but not yet in Southeast Asia. This study aimed to gather knowledge about physical activity determinants and correlations from studies held among adults in Southeast Asia. Thus, it would provide an understanding about factors that related to Southeast Asian adult physical activity behavior and a guideline to extend study why were some people active but some other not. This study used a systematic review by using PRISMA 2009. Online database (Pubmed and Google Scholar) was used to find a relevant article contain determinant, correlate, or factors affecting physical activity among adults in Southeast Asia countries.

The result from 8 studies in Southeast Asia countries showed some determinants of physical activity such as socio-demographic factors, psychological factors (perceived benefits, self-efficacy, self-regulation) and health status. It showed that physical activity was associated with age, education, marital status, income, job characteristic and living in urban or rural. The perceived benefit, greater self-efficacy, and self-regulation obtained participation in physical activity. Moreover, diagnose with hypercholesterolemia was also associated with physical activity. Understanding determinants factors could be a contribution for public health to design program and policy that increase physical activity participation among Southeast Asians adults.

Keywords: physical activity, determinants, adults, Southeast Asia

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1. Introduction

The health benefits of doing physical activity have known widely. In general, physical activity is defined as any bodily movement, whereas exercise denotes a structured, planned action performed with a fitness goal in mind (1–3). Global recommendation for physical activity for health in adults is 150 minutes of moderate-intensity aerobic

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physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate- and vigorous-intensity activity (4). Regular moderate-intensity of physical activity in adults is good for mental health and reduce the risk of non-communicable diseases (NCD), such as hypertension, coronary heart disease, stroke, diabetes, cancer (5). Studies show that being physically active can reduce the risk of premature death by about 35% (6). There is also evidence suggesting that physically inactive middle-aged women are 6% more likely to die from cardiovascular diseases than their physically active counterparts (7). The negative relationships between physical activity and the risks of developing type 2 diabetes and cancers are also well identified (8, 9).

Worldwide, 31.1% of adults were physically inactive, with proportions ranging from 17% in Southeast Asia to about 43% in the Americas and the eastern Mediterranean. This data showed that Southeast Asia adults were less physical inactivity than other country regions, but the extensive data in this third countries were still scarce and the method used to examine the physical activity level was varied (10). Southeast Asia nowadays faces an epidemic of chronic NCD. Additionally, NCD is responsible for 60% of deaths in the region. Furthermore, the problem stems are mostly from inadequate physical activity, tobacco use, and unhealthy diet (3,11).

To help people to become physically active, it will be necessary to know the determinant factors that will make adults do so. Factors related to participation in physical activity have been widely studied in western countries. Few such studies have been conducted in Southeast Asia(12,13) even though many of Southeast Asia countries currently do campaign the importance of physical activity due to the emerging rise of non-communicable disease.

This study had two aim. First, to summarize present knowledge about the determinants of physical activity among Southeast Asian adults. Thus, this study could provide basic information why some people were physically active and some others were not and contribute to evidence-based planning of public health interventions. Second, it's to analyze determinants of physical activity that were least studied. Thus, it could provide an outline to another extensive research about physical activity among Southeast Asian adults.

2. Methods

The following methods used to gather relevant articles about determinants or correlates of physical activity in Southeast Asia. Online search was carried by Pubmed and Google Scholar as the addition. To identify any study in 11 Southeast Asia countries, we used keywords 'physical activity', 'correlates', 'determinants', 'associate', 'factors' combined with each country names, 'Indonesia', 'Malaysia', 'Singapore', 'Philippines', 'Thailand', 'Brunei Darussalam', 'Vietnam', 'Cambodia', 'Myanmar', 'Laos', 'Timor-Leste'. The exclusion criteria were 1) population not among adults, 2) article published more than ten years ago (before 2007), 3) could not obtain the full-text article, 4) did not describe determinants nor correlated of physical activity behavior. The inclusion criteria for the desired article were studies about determinants of physical activity and held in Southeast Asia countries.

Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) methods was done under the guidelines of PRISMA 2009. We started the search in March 2017 and did the final in May 2017. Flow chart of the method was described in Figure 1.

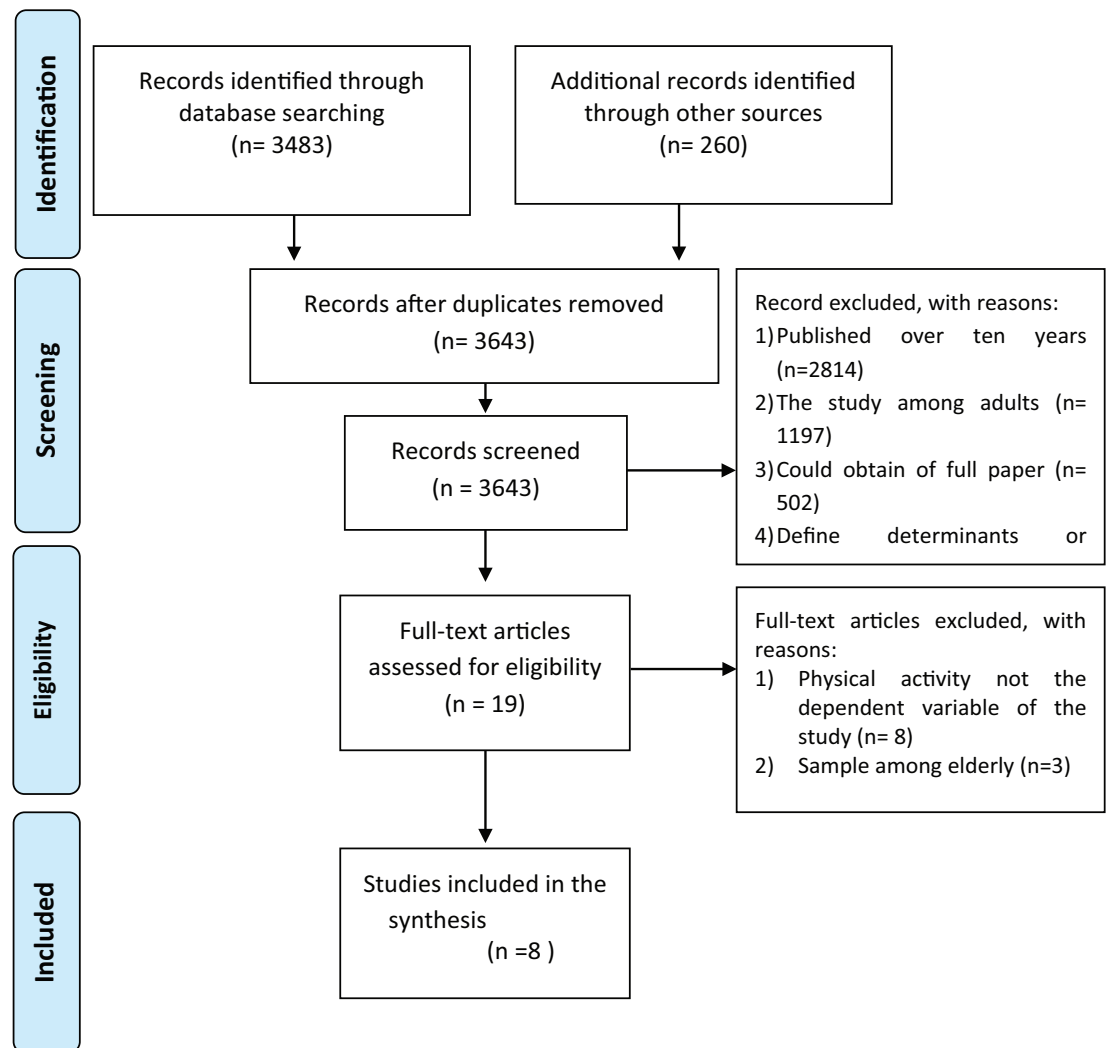


Figure 1: PRISMA Methods.

Database search used keywords, and one by one Southeast Asia country names obtained thousands of article. After being screened and assessed for eligibility, we found eight studies which were three studies from Indonesia, two studies from Malaysia, two studies from Vietnam and one study from Singapore. Data extraction and analysis of each were done by authors. Results were classified and analyzed thematically to socio-demographic factors, psychological factors, and health status. Further analysis of the data prepared in accordance with the theme.

3. Results

The result from database search found eight studies, three studies from Indonesia, two studies from Malaysia, two studies from Vietnam and one study from Singapore. All of

the studies were cross-sectional study. Most of them used national health survey data specified on adult population (age 18 to 64). The present study found that age, marital status, education, income, job characteristic, living in urban or rural, perceived benefit, self-efficacy, self-regulation and health status were associated to physical activity behavior among Southeast Asian adults (See Table 1).

3.1. Socio-demographic factors

Age consistently related to physical activity behavior. As found in the studies, older adults were less likely to be physically active than younger adults (9,14–16). Marital status was also correlated to physical activity. Single adults showed that it was more physically active than married adults (14,17). Adults with higher education found less physically active (9, 14, 15). Higher monthly income also found correlate to less physical activity (9, 14, 15, 18). Related to job characteristic, non-full time employment and self-employment found associated with being physically active (9, 14, 15). Living in rural also found to be related to more physically active (9, 14, 18, 19).

Regarding gender, all of the studies which were reviewed showed the correlation between gender and physical activity behavior. Most of the studies stated that male adults found to be more physically active than female, except for one study from Vietnam. These study revealed that Vietnam female adults were more physically active than male adults(18).

3.2. Psychological factors

The only study focused on psychological factors related to physical activity was done by Wulandari (20). *Social cognitive theory* (SCT) was used to understand the determinants of adult physical activity behavior. Perceived benefit from doing physical activity found it related to physical activity. The higher level of self-efficacy and self-regulation also found it more physically active.

3.3. Health status factors

According to health status, adults diagnosed with hypercholesterolemia were more likely to be physically active than who did not (9). Another study found the correlation between physical activity and body mass index (BMI), revealing a negative correlation(16,19).

4. Discussion

There were still very few studies in Southeast Asia that addressed the determinant, correlation or factors contribute to performing physical activity behavior. Evidence from socio-demographic factors could identify subgroups that need intensive intervention. The current study showed that subgroups of populations that were important to be the target of program intervention which was late adult, married, high income, highly

TABLE 1: Systematic Review Correlates and Determinant of Physical Activity Among Southeast Asian Adults.

Study Country	Malaysia	Singapore	Vietnam	Indonesia
Author	Cheah and Poh (9) Teh et al (14)	Win et al (15)	Trinh et al (18) Bui et al (19)	Mahardikawati and Roosita (16) Moray et al (22) Wulandari(20)
Socio-demographic				
Age	Correlate	Correlate	Not reported	Not reported
Gender	Correlate (Male)	Correlate (Male)	Correlate (Female)	Not reported
Education	Correlate	Correlate	Not reported	Not reported
Marital Status	Correlate	Not reported	Not reported	Not reported
Income	Correlate	Correlate	Not reported	Not reported
Job Characteristic	Correlate	Correlate	Not reported	Not reported
Urban Rural	Correlate	Not reported	Correlate	Not reported
Health Status				
Diagnose with Disease	Correlate (diagnosed with hypercholesterole	Not reported	Not reported	Not reported
Weight/BMI	Not reported	Not reported	Not reported	Not reported
Social-cognitive				
Perceived Benefit/Outcome Expectation	Not reported	Not reported	Not reported	Correlate
Self Efficacy	Not reported	Not reported	Not reported	Not reported
Self Regulation	Not reported	Not reported	Not reported	Correlate

educated, full-time work and lived in urban areas. All of these socio-demographic characteristics apparently related to physical inactivity among Southeast Asian adults.

The only factor found in the current study which had an inconsistent relationship to physical activity was gender. These results were different from the study of systematic reviews conducted by Bauman et al. (13) in western countries where the male was found associated with physical activity behavior. Population differences could lead to distinguishing characteristics that make a population distinctive, as well as how they would intervene appropriately. These finding indicated that it needed further research.

The association between health and physical activity had been considered in the context of Western countries (12,13). This might be happening because individuals who were diagnosed with a medical condition were more alert to their health and thus, they would be more aware to adopt healthy physical practices. These findings indicated the needs to gain awareness that people should exercise regularly regardless of their health condition, not to wait until diagnosed with a medical condition and then just start to adopt healthy physical practices. Moreover, people also needed to be informed about the fact that adopting physical activity could be a great contribution in preventing disease.

Other factors found to be a determinant of physical activity were psychological factors, which were perceived benefit, self-efficacy, and self-regulation. Research conducted Wulandari (23) by using the foundation of Social Cognitive Theory explained the determinant factors of physical activity behavior. The research concluded that perceived benefit from doing physical activity, good self-efficacy and/or good self-regulation were the determinant factor for a person to do physical activity.

Regarding theoretical basis discussed on the previous paragraph, initial studies of determinants or factors related to physical activity in western countries were still limited to non-theoretical approach individual factors such as age, sex, marital status, or income. Three decades later, many researchers began to shift to other factors that considered more explainable to understand physical activity behavior since there were theories that support. Those theories from various fields of science were such as psychology, social, marketing and so on, then adopted as research framework in order to explain physical activity behavior (1,12,21).

The current study also denotes the same trend. Most research on physical activity in Southeast Asia is still dominated by individual or socio-demographic explanations. Very least study stressing on behavioral, psychological, or environmental factors could give a better understanding of adopting physical activity behavior. This would be a future opportunity for further research that attempts to explain those determinants of physical activity behavior. The results of the study will further serve as a basis for designing health promotion interventions programs, particularly on the importance of maintaining regular physical activity. An effective program will target factors known to cause inactivity, thus it can help to make people more active. Relevant policies and effective interventions that focus on modifying these factors could be designed precisely.

Competing Interest

Authors declare that there is no competing interest due to this work.

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