

PHYSICAL ACTIVITY AMONG MUSLIM ADOLESCENTS IN INDONESIA

Husna Hidayati^{1*}, Urai Hatthakit², Sang-Arun Isaramalai³

¹Lecture of Faculty of Nursing Syiah Kuala University

^{2,3}Lecture of Faculty of Nursing, Prince of Songkla University, Thailand

*E-mail: husna_poenya@yahoo.com

ABSTRACT

A descriptive study was conducted to identify the level of physical activity and the correlates of demographic characteristics to physical activity among Muslim adolescents in Indonesia. This study was a cross sectional study. One hundred and fifty adolescents in senior high school who met the inclusion criteria were recruited from Banda Aceh municipality and Aceh Besar district in Aceh province, Indonesia. Physical activity was analyzed using descriptive statistics. The Demographic Data Questionnaire (DDQ) and the Adolescent's Physical Activity Questionnaire were the instruments of this study. The result showed that the level of physical activity in Indonesian Muslim adolescents were at a moderate level. Additional analysis of several demographic characteristics revealed that gender had a significant influence on physical activity while the other variables had no statistical influence on physical activity. The findings of this study have provided evidence regarding the level of physical activity in Indonesian Muslim adolescents. This study can be used as baseline data for further knowledge development and studies related to this area still can be conducted for better understanding.

Keyword: Adolescent, Physical Activity, Health Promotion

INTRODUCTION

Globally, chronic diseases become the serious threat to the health of population around the world (Dallinga et al, 2015). Indonesia is one of the developing countries that has the increasing number of chronic diseases. It was estimated around 1.1 million people died in Indonesia because of the impact of chronic disease and this number would increase 21 percent over the ten years later (The Partnership to Fight Chronic Disease [PFCDD], 2011). The occurrence of chronic disease is strongly associated with the unhealthy lifestyle behaviors.

Physical activity has been proposed as one of the healthy lifestyles established in current years as a significant way to respond with the variety health problems of poor sedentary lifestyles (Schoppe, Bauman & Bull, 2004). It can prevent and control the variety of chronic illness such as coronary heart disease, hypertension, diabetes, colon cancer, and osteoporosis (Fletcher, Balady & Blair as cited in Delisle, Werch, Wong, Bian & Weiler, 2008). Pender, Murdaugh and Parson (2002) mentioned the regular physical activity has strong correlation with the physiologic stability, can gain high level of individual functioning while it is also able to diminish the risk of depression, and enhance individual self esteem and self concept. In the case of children and adolescents, physical

activity not only can prevent the risky behaviors but also give the health advantages to this population (Pate, Trost, Levin & Dowda as cited in Wu, Robbins & Hsieh, 2011) particularly to build the normal skeletal development and achievement of peak bone of mass (Pender, Murdaugh & Parson, 2002), producing healthy bones, maintain the psychological well being (Boreham & Riddoch as cited in Lee, Loprinzi & Trost, 2010), and modify the cardiovascular risk factors (Insani, Putra & Firmansyah, 2010).

Several studies have been conducted to identify the physical activity, however it is uncertain whether the findings can be generalized into the adolescents population, particularly Muslim adolescents in Indonesia. In regard to these circumstances, the physical activity among Muslim adolescents in Indonesia is still needed to be described.

OBJECTIVES

The objectives of this study were to describe the physical activity among Muslim adolescents as well as to identify the correlates of demographic characteristics to physical activity.

METHODS

Target Population and Settings

The target population in this study was adolescents who were studying in public senior high schools aged between 15-18 years. The public senior high schools located in Banda Aceh municipality and Aceh Besar District were the setting of this study. The sample was selected based on the inclusion criteria including living with their family during their study, being healthy (no underlying disease), being able to communicate verbally in Indonesian language and having consent from their parents to participate in this study.

Data Collection Instruments

Demographic Data Questionnaire (DDQ)

The Demographic Data Questionnaire was developed by the researcher. It consists of eight questions to assess the participant's demographic data including: age, gender, grade level, religion, ethnicity, father's occupation, mother's occupation and family income.

Adolescent's Physical Activity Questionnaire

This instrument originally was developed by Kijboonchoo et al. (2007) then modified by Wattanasit, Prateepchaikul, Petpichetchian, Meininger and Kitboonchoo (2010) into The Modified Thai Adolescent's Physical Activity Questionnaire (MTAPAQ) to assess the physical activity in Thai adolescents. In this study, the researcher used the MTAPAQ version. However, since this instrument was used in Indonesian adolescents, the researcher modified the name of this instrument into "Adolescent's Physical Activity Questionnaire" after getting permission from the MTAPAQ's developers.

This instrument is the 7-day recall questionnaire that consists of seven groups of physical activity: (1) activities that involved sitting (1 item); (2) games and free-play that involved movement (1 item); (3) physical exercises (six items); (4) walking (1 item); (5) sports (14 items); (6) household activity (six items); and (7) transportation activity (2 items). Sedentary activities (activities that involve sitting quietly) were also included such as watching television, using a computer, listening to music, watching a movie in a theatre, and reading/ doing homework. The participants in this study were asked to recall the activities that they performed during the previous seven days by reminding them of the number of days

(frequency) and the length of time (duration) in each day. To determine the volume or energy cost (Metabolic Equivalent of Tasks [MET]) of physical activity, the activities performed are listed in regard to the value of MET based on Ridley, Ainsworth, and Olds (2008). Further, to examine the level of physical activity, the total MET mins of overall physical activity was calculated. Three ranges were categorized by identifying the cut off point of physical activity as the following: low level (872-6556 MET-mins), moderate level (6557-12243 MET-mins) and high level (12244-17929 MET-mins).

Ethical Consideration

Prior to conducting the research, the researcher obtained following approval from the Research Ethics Committee of the Faculty of Nursing, Prince of Songkla University, Thailand and the Nursing Program of the Medical Faculty, Syiah Kuala University, Indonesia. The researcher also asked for permission from the adolescents' parents by giving informed consent to the adolescents. In order to protect human's rights, all participants had the right and an independent choice whether to refuse or participate in this study. They were informed about the purposes and the benefits of this study, ensured of confidentiality and also this study would have no negative effect for the participants in the future.

Data Analysis

The descriptive statistics were used to describe subjects' demographic characteristics and the physical activity in term of frequency and percentage as well as the chi-square analysis was used to identify the correlates of demographic characteristics to physical activity.

RESULTS

Demographic Characteristics

In the present study, seventy-five subjects (50%) were recruited from Banda Aceh municipality and another seventy-five (50%) were from Aceh Besar district. There was an equal number of males and females (N=75). The mean age of the subjects was 16.39 years (SD= 1.03), ranging from 15-18 years old. Regarding the grade level, the number of subjects was equivalent for each grade level 10, 11 and 12 (N=50). All

subjects were Muslim (100%) and the majority of them were Acehnese (92%). Approximately 49 of the subjects' father's occupation were government officers and entrepreneurs (32.7%) and most of their mothers were housewives (64%). Most of them (72%) reported their family income at 2,500,000 rupiahs or less per month (Table 1).

Table 1
Frequency and Percentage of Demographic Characteristics of the Subjects (N = 150)

Characteristics
Age (Mean= 16.39 years, SD= 1.03)
15
16
17
18
Grade Level
Grade 10
Grade 11
Grade 12
Ethnicity
Acehnese
Non Acehnese
Fathers' Occupation
Government officer
Employee of a company
Farmer
Entrepreneur
Others
Mothers' Occupation
Housewife
Government officer
Farmer
Others
Average Family Income
< Rp.1,000,000
Rp.1,000,001-2,500,000
Rp.2,500,001-5,000,000
> Rp.5,000,000

The Physical Activity of Muslim Adolescents in Indonesia

To examine the volume of physical activity, the total of Metabolic Equivalent of Tasks (MET) mins was calculated. Thus, from the calculation the level of physical activity can be further analyzed in three levels: low, moderate and high level of activity. The results showed that most of the subjects performed physical activity at a moderate level (59.3%) while less than thirty percent (27.3%) reported a low level of

activity. Only a small number of subjects (13.3%) performed physical activity at a high level (Table 2).

For the most preferential activities overall, the result confirmed walking as a most common activity that was performed by Muslim adolescents in Indonesia, followed by games and free-play that involved sitting activities, exercise that involved running, calisthenics and house cleaning (Table 3).

Table 2
The Level of Physical Activity of the Subjects (N= 150)

Variables	Level	Range	F	%
Physical Activity (MET-mins)	Low	872-6556	41	27.3
	Moderate	6557-12243	89	59.3
	High	12244-17929	20	13.3

Table 3
Frequency and Percentage of Each Item of Physical Activity (N=150)

Activities	Total (N= 150)	
	Yes N (%)	No N (%)
1. Walking	150 (100)	-
2. Games and free-plays that involve sitting activity	138 (92.0)	32.712 (8.0)
3. Exercise that involve running	136 (90.7)	32.714 (9.3)
4. Calisthenics	135 (90.0)	15 (10.0)
5. House cleaning	113 (75.3)	64.07 (24.7)

Correlates of Demographic Characteristics to Physical Activity

In order to gain a better understanding of the factors contributing to physical activity among Muslim adolescents in Indonesia, several of the demographic characteristics of this study were included in the statistical analysis. The result showed that it was only the gender variable that had a significance influence while the other variables had no statistical influence on physical activity (Table 4).

Table 4
Correlation between Demographic Characteristics and Physical Activity (N=150)

Demographic Characteristics	Physical Activity			p-value
	Low n (%)	Moderate n (%)	High n (%)	
Gender				.00*
Male	20 (26.0)	41 (54.6)	14 (18.6)	
Female	33 (44.0)	36 (48.0)	6 (8.0)	
Age				.36
15	11 (32.4)	19 (55.9)	4 (11.8) 9 (17.3)	
16	14 (26.9)	29 (52.8)	6 (16.7) 1 (3.6)	
17	11 (30.6)	19 (52.8)		
18	5 (17.9)	22 (78.6)		
Ethnicity				.39
Acehnese	39 (28.3)	82 (59.4)	17 (12.3)	
Non-Acehnese	2 (16.7)	7 (58.3)	3 (25.0)	
Fathers' occupation				.38
Government officer	14 (28.6)	31 (63.3)	4 (8.2) 3 (30.0)	
Employee of company	1 (10.0)	6 (60.0)	6 (17.1)	
Farmer	14 (40.0)	15 (42.9)	6 (12.2) 1 (14.3)	
Entrepreneur	11 (22.4)	32 (65.3)		
Others	1 (14.3)	5 (71.4)		
Mothers' occupation				.27
Housewife	30 (31.2)	55 (57.3)	11 (11.5)	
Government officer	6 (20.7)	19 (65.5)	4 (13.8)	
Farmer	5 (27.8)	9 (50.0)	4 (22.2)	
Others	0	6 (85.7)	1 (14.3)	
Average family income (Rp)				.28
< 1,000,000	15 (32.6)	23 (50.0)	8 (17.4)	
1,000,001-2,500,000	19 (30.6)	36 (58.1)	7 (11.3)	
2,500,001-5,000,000	7 (21.9)	22 (68.8)	3 (9.40)	
> 5,000,000	0 (0)	8 (80.0)	2 (20.0)	

*Chi-Square Test

DISCUSSION

Overall, the findings of this study showed that the level of physical activity among Muslim adolescents in Indonesia was at a moderate level. This finding is consistent with the previous study conducted in Taiwanese adolescents using a different method to examine the level of physical activity (Chen, Haase and Fox, 2007). It was reported that around 50.5% of the adolescents were insufficiently active or at a moderate level of activity while only 28.4% met the recommended level of physical activity.

The moderate level of physical activity performed by adolescents in the present study indicated that it was not good enough. Several reasons might have influenced the result. The researcher divided the influencing factors into the supporting factors and the inhibiting factors as given in the following explanation. There are some supporting factors probably contributing to the results of this study. Firstly, the strong belief of Acehnese people influences physical activity and sport from an Islamic perception. Islam places a high level of attention on physical activity thus Islam promotes good health for both Muslim men and women. Acehnese people have been known to maintain high values of Islam. As we know, Aceh become the first province in Indonesia in which Islam entered and grew. Acehnese people over the course of history have made Islam the guidance of their life resulting in the Acehnese culture based on the Islamic rule.

Secondly, the influence of physical education (PE) in school. Physical education (PE) in school has an important role in providing the basic knowledge and also in enhancing a student's participation in physical activity (Harsuki & Elias, 2003). However, the contribution of PE has to be considered. As we know, school is the most valuable place that can enhance a student's participation in physical activity. The involvement of a school-based physical education (PE) program has resulted a higher level of a student's physical activity (Madsen, Gosliner, Woodward-Lopez, & Crawford, 2009). However, it has been reported that the allocated time to perform PE in school has decreased and in some schools has even been eliminated (Lowry, Wechsler, Kann & Collins, 2001). Schools have been pressured to reduce PE times in regards to

improving academic scores and budget restrictions thus the time spent engaging in physical activity during school time is now often insufficient (Diamant, Babey & Wolstein, 2011). This situation has also occurred in Indonesia. The allocated time provided by schools to PE is only once a week within a two hour duration. With regards to this, it is significantly important to enhance physical education in schools by providing school policies and comprehensive practices to increase the quality of PE classes at school in Indonesia, specifically in Aceh. Additionally, it has been mentioned that the quality of physical education can create a unique experience for the students to be able to get enough knowledge and skills regarding physical activity that it will be linked to an active lifestyle that extends into their adulthood period (Kahn et al, 2002). Thus, the school has a big role in order to encourage the needs of lifelong physical activity.

In the other side, there are two inhibiting factors that probably influence the findings of this study. Firstly, the high sedentary activities of adolescents who were in senior high school. It was mentioned that the participation in physical activity during adolescence influences the active involvement in adulthood. Thus, the government, and health professionals suggest that in order to stay in a healthy condition, adolescents should perform physical activity regularly (U. S. Department of Health and Human Services as cited in Sallis, Zakarian, Hovell & Hofstetter, 1996). However, it has certainly been recognized that adolescents in senior high school should prepare themselves for examinations to continue their study in university, thus they usually study hard by joining extra academic courses in order to gain a place in their preferred university. Probably, the high focused on study especially in academic lessons that may have influenced the moderate level of physical activity.

The lack of financial support from the family is the second inhibiting factor. Based on the data, around 30.7% of adolescents reported their family income was less than 1,000,000 rupiahs per month while around 41.3% of them reported 1,000,001-2,500,000 rupiahs per month. According to Santos, Esculcas and Mota (2004), the family

socioeconomic status has been associated with the level of physical activity in youth, while the low income populations tend to engage in low levels of activity (USDHHS as cited in Maglione & Hayman, 2009). This is also supported by WHO (2004) that stated the younger aged persons with lower socioeconomic status will have more difficulty to access leisure facilities and will live in the environments that do not support physical activity. Thus, there is a tendency in increased sedentary behavior.

Not surprisingly the additional analysis of this study revealed that there was a significant influence of gender on physical activity among Muslim adolescents in Indonesia while females were less active than males (Table 6). The finding was congruent with the previous studies that reported that males have higher levels of physical activity than females (Aniza et al, 2009; Chen et al, 2007; Eakin et al, 2005; Hwang et al, 2011; Lee et al, 2010; Mak et al, 2011; Wattanasit, 2009; Xu et al, 2009). Several factors may have contributed to the less active roles of female adolescents including a lack of opportunity to perform physical activity, a lack of motivation, inappropriate weather conditions, and worry about their appearance during physical activity (Eakin et al, 2005).

Regarding the preferences of physical activity, the most common physical activities performed by Muslim adolescents in Indonesia were walking (100%), games and free-play that involved sitting activities (92%), running (90.7%), calisthenics (90%) and house cleaning (75.3%) (Table 3). The finding was not similar with the study of physical activity that was conducted by Chen, Haase, and Fox (2007) in Taiwan. The top five popular physical activities among Taiwanese adolescents were ball sports, cycling, jogging, gymnastics and swimming. From the results of the present study, it can be revealed that the most common activities were only those activities that did not require special sport facilities and equipment. Probably, the limited sport facilities available in Aceh province is the main reason why adolescents in this study rarely performed those kinds of activities. The availability of a sport facility is one of the environmental supports that influence people especially adolescents' participation to perform physical activity regularly.

STRENGTH AND LIMITATION

There was no previous study regarding the physical activity among Indonesian Muslim adolescents in Aceh province, thus this study can be used as baseline data for further knowledge development and studies related to this area still can be conducted for better understanding. Moreover, the instrument that used to measure physical activity included seven groups of activities and one group of sedentary behavior, thus it can provide overall description of physical activity among adolescents.

However, some limitations should be addressed. Firstly, the recruited sample of only one school from rural area and one school from urban area might lead to the selection bias, thus this study could not be generalized. Secondly, the use of only a self report as a single method provided a bias specifically related to the accuracy of self report data.

CONCLUSION

The findings of this study have provided evidence regarding the physical activity in Indonesian Muslim adolescents. Overall, the level of physical activity in Indonesian Muslim adolescents was at a moderate level. Gender had a significant influence on physical activity. Several factors might influence the result of the present study including the strong belief of Acehese people, the influence of PE in school, the highly sedentary activities in school, and the lack of financial support from the family.

RECOMMENDATION

This study investigated the physical activity among Muslim adolescents in Indonesia. The moderate level of physical activity in Indonesian Muslim adolescents must be taken into consideration and requires a comprehensive approach at the national, provincial, district, and school level. The importance of physical education (PE) should be responded by preparing specific strategies to enhance the quality of PE.

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