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The Relationship Between Sex, Physical Activity and Body mass index in Thai Adult Working

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Abstract. Physical activity (PA) is associated with improved body mass index (BMI) indicates a ratio of body weight to squared height, which is a useful health indicator. So, the objectives of this study were to analyze the relationship between sex with physical activity and body mass index in Thai working adults from Mahasarakham Province University, aged 25 years and older, both males and females. The sample group consisted of 400 people by a sampling procedure, following Krejci and Morgan's Sample Size Determination Table. The results were found that r = -.032 and p-value = .518, sex with body mass index found that r = -.016 and p-value = .756 and physical activity with body mass index found that r = -.076 and p-value = .128 which is higher than .05. This indicates that there is no significant relationship between sex and physical activity, or sex and body mass index, among Thai working adults. Although, other researchers reported that physical activity has an inverse relationship with body mass index.

Key words: physical activity; body mass index; thai adult working

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INTRODUCTION

Body mass index (BMI) is a referencing tool to determine the standard weight status of a person with their corresponding height. BMI can be used to determine the weight categories, and may be used to indicate health and nutritional status. There are four weight categories in the BMI, i.e. underweight, normal weight, overweight and obese. BMI values are independent of age and applicable for both males and females (binti Jamani et al.,2018). Florido et al. reported that when physical activities are increased, the chances of having cardiac injury or becoming obese are lessened. People with lower physical activity levels are more likely to be women (Florido et al.,2017). One of the most efficient ways to overcome obesity is to increase the level of physical activity. Riddiford-Harland et al.,2016; Graff, M.,2016). Being involved in physical activities may also help in maintaining good-looking bodies and promotes physical fitness (Muñoz-Vera T et al., 2017). People with sedentary lifestyles are very likely to have greater body fat and BMI compared to people with active lifestyles (Hruby A and Hu FB, 2015). This is because body fat has a negative correlation with total energy expenditure (Fonseca DC et al.,2018).

The Physical Activity Guidelines for Americans Adults should do at least 150 minutes to 300 minutes a week of moderate-intensity, or ***75*** minutes to ***150*** minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. They should also do muscle-strengthening activities on 2 or more days a week. (Piercy KL , Troiano RP , Ballard RM , et al ,2018). Promoting physical activity among Thai people of all age groups is crucial for enhancing their overall health and well-being. Here are some strategies and initiatives that can help encourage physical activity in Adults (***18-64*** years): Workplace wellness programs: Encourage employers to implement workplace wellness initiatives that promote physical activity, such as exercise breaks, walking challenges, or gym memberships. Offer

incentives or rewards to employees who engage in regular physical activity. Community sports and recreation programs: Develop community-based programs that cater to different interests and fitness levels. These can include sports leagues, fitness classes, running clubs, or outdoor group activities. Promote the use of public parks and recreational facilities. Active transportation: Encourage walking or cycling for short distances instead of relying solely on motorized transport. Improve infrastructure, such as sidewalks and bike lanes, to make active transportation safer and more accessible (WHO, 2010).

Present research emphasize the importance of examining the relationship between sex and physical activity and body mass index (BMI), in order to understand the variance of physical activity levels. Therefore, the aim of this study were to analyze the relationship between sex and physical activity and body mass index.

METHOD

A survey research design was used in this research. Using a sampling procedure, following Krejci and Morgan's Sample Size Determination Table (Krejci and Morgan, 1970), a total number of 400 working adults from Mahasarakham Province University responded to the GPAQ measures how many MET-min of physical activity is engaged during a typical week. The sample group had an inclusion criterion of competing less than or equal to 600 MET-minutes per week. Moderate- intensity physical activity corresponds to 4 MET/min, and vigorous-intensity physical activity corresponds to 8 MET/min (WHO, 2012). The data from the questionnaire will be analyzed using quantitative research statistical analysis methods, which are descriptive statistics (frequency, and percentage) to determine their physical activity level and body mass index classification. Correlation was used to analyze the relationship between sex and physical activity, and body mass index.

The participants were aware of the objectives and gave their written informed consent to participate. This study was performed in compliance with the Committee on Ethics for Research in Humans Mahasarakham University Division of Research (MSU-EC 291-233/2022).

RESULTS AND DISCUSSION

Table 1. Demographic Profile

Characteristics	Frequency (N)	Percentage (%)
Gender		
Male	161	40.2
Female	239	59.8
Total	400	100

Table 1 illustrates the summary of respondents. A total of 400 adult working involved in this survey with 161 males (40.2%) and 239 females (59.8%).

Table 2. Physical Activity Level

Physical Activity		
Level	Frequency	Percent
Low	52	13.0
Moderate	111	27.8
High	237	59.3
Total	400	100.0

Table 2 represents physical activity levels by frequency and percent. Most respondents 237 (59.3%) have the high level of physical activity, followed by 111 (27.8%) have the high level of physical activity and about 52 (13.0%) have low level of physical activity.

Table 3. Body mass index classification

Body mass index		
classification	Frequency	Percent
Underweight	24	6.0
Normal rang	159	39.8
Obesity 1	70	17.5
Obesity 2	125	31.3
Obesity 3	22	5.5
Total	400	100.0

Table 3 represents Body mass index by the frequency and percent. Most respondents 159 (39.8%) have the Normal rang of Body mass index, followed by 125 (31.3%) have the Obesity 2, 70 (17.5%) have the Obesity 1, 24 (6.0%) have the Underweight and about 22 (5.5%) have Obesity 3.

Table 4. Pearson's Correlation between Sex, Physical Activity and Body mass index.

		Sex	Physical Activity	Body mass index
Sex	Pearson Correlation	1	-.032	-.016
	Sig. (2-tailed)		.518	.756
	N		400	400
Physical Activity	Pearson Correlation	-.032	1	-.076
	Sig. (2-tailed)	.518		.128
	N	400		400
Body mass index	Pearson Correlation	-.016	-.076	1
	Sig. (2-tailed)	.756	.128	
	N	400	400	

Correlation is significant at the 0.05 level (2-tailed).

Table 4 illustrates the findings of inferential analysis towards the relationship between sex and physical activity, and body mass index among 400 Thai working adults. Pearson's correlation analysis was conducted to analyze if there is any significant relationship between sex and physical activity. The analysis found that r = -.032 and p-value = .518, sex and body mass index found that r = -.016 and p-value = .756 and physical activity and body mass index found that r = -.076 and p-value = .128 which is higher than .05. This indicates that there is a no significant relationship between sex and physical activity, sex and body mass index, and physical activity and body mass index, among Thai working adults.

Discussion

Physical activity may be an effective strategy to curb rising obesity in Africa. More studies are needed to assess the impact of sex and geographic location-specific physical activity interventions on obesity. (Monica Muti et al., 2023). Overweight/obese men reported a significantly lower level of vigorous-intensity PA and total PA than normal-weight men ($p < 0.001$). A low level of PA was associated with the risk of overweight/obesity (Adjusted OR = 1.14; 95% CI: 1.01–1.30) compared to a high level of PA among men but not among women. The levels of PA were inversely related to the risk of overweight/obesity in men but not in women. (YY Chan et al.,2017). Public health interventions should focus on improving time use among males, older age groups, and unemployed people, while preventing the rapid decrease in PA and increase in SB among those with a higher education degree and on weekends (Liangruenrom, N et al., 2023).The promotion of physical activity for Thai people is influenced by various factors, including the current situation and the actions being taken to encourage an active lifestyle. Here's an overview of the situation and some actions concerning physical activity for Thai people:

Situation

1.Sedentary Lifestyle: Many Thais, particularly in urban areas, lead sedentary lifestyles due to factors such as desk jobs, increased screen time, and reliance on motorized transportation.
2. Health Concerns: The rise in non-communicable diseases, such as obesity, diabetes, and cardiovascular conditions, is attributed partly to inadequate physical activity.
3. Cultural Barriers: Some cultural factors, such as a preference for indoor activities or a perception that exercise is primarily for weight loss, can hinder participation in physical activity.

Actions:

1.National Physical Activity Guidelines: The Thai government has developed guidelines that recommend specific levels of physical activity for different age groups. These guidelines help raise awareness and provide a framework for promoting physical activity.
2.Workplace Wellness: Employers are encouraged to implement workplace wellness programs that promote physical activity. This includes providing facilities for exercise, organizing health-related events, and promoting active commuting.
3. Community Initiatives: Local governments and community organizations organize sports events, fitness challenges, and recreational activities to encourage participation at the community level. Parks, public spaces, and walking/cycling paths are being developed and improved to facilitate physical activity.
4. Media and Awareness Campaigns: Media outlets, public health campaigns, and influencers are used to disseminate information on the benefits of physical activity and provide guidance on how to incorporate it into daily life.
5. Collaboration with Health Sector: Healthcare providers are incorporating physical activity counseling into routine healthcare services, promoting its importance for prevention and management of chronic conditions.
6. Public-Private Partnerships: Partnerships between government, private companies, and non-governmental organizations are formed to develop and implement physical activity promotion programs, create supportive environments, and provide resources.

Thailand has been affected by urbanisation, where, in search of better socioeconomic opportunities, many young working people move to urban areas or cities, especially to the capital, Bangkok. According to the Department of Economic and Social Affairs, United Nations, half of the Thai population (51.1%) is urban (Worldometers :Thailand population, 2015). As part of the national health promotion strategies, the Thai Government has aimed to promote engagement in PA since 1997 and has recently included targets to reduce SB as ways to reduce the burden of NCDs (Topothai T et al., 2016)

These reports show that increased physical activity is important in efforts to lose weight because it increases energy expenditure and plays an integral role in weight maintenance. In addition, increased physical activity may help to increase physical activity level and reduce body mass index.

CONCLUSION

The study concluded that it was weak inverse relationship but not significant. There was no association between physical activity and body mass index , and sex. It does, directly when the promotion of physical activity requires a comprehensive approach that addresses various aspects of individuals' lives. Here are some ways to effectively implement physical activity promotion. Understanding these factors is crucial for designing effective interventions and programs to promote physical activity. By addressing personal, social, environmental, and policy-related factors, efforts can be made to create an environment that encourages and supports regular physical activity for individuals and communities.

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