

## **Relationship between Personality Traits and Physical Activity Participation**

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### **ABSTRACT**

Objective of the study was to explore the affiliation amongst the Personality Traits and physical activity participation based on Area of Study, Program Level and Year of Program and Type of Physical Activity (Group and Individual Activities). Two hundreds and five 205 participants (117 males and 88 females;  $M$  age = 20.69;  $SD$  = 1.465) from a local institution of higher learning in Malaysia partook in this study. Participants completed two inventories: Godin-Shepard Leisure-Time Exercise Questionnaire by Godin & Shepard (1985) and the Big-Five Inventory by John & Srivastava (1999) for data collection. Findings indicated that Extraversion ( $r = 0.160$ ,  $p = 0.022$ ) and Openness ( $r = 0.148$ ,  $p = 0.034$ ) were positively correlated with physical activity participation. Extraversion based on Area of Study was also significant ( $F(5,199) = 2.750$ ;  $p = 0.020$ ). Gender ( $M = 23.92$ ,  $SD = 5.864$ ,  $p = 0.035$ ); type of physical activity ( $M = 23.92$ ,  $SD = 5.864$ ,  $p = 0.047$ ) and area of study ( $F(5,199) = 5.454$ ,  $p = 0.000$ ) were significant for Neuroticism. Age group ( $M = 23.92$ ,  $SD = 5.864$ ,  $p = 0.005$ ) was significant for Openness. This study indicated that personality traits are one of the contributing factors that attribute towards physical activity participation on an individual.

### ARTICLE INFO

#### *Article history:*

Received: 6 May 2019

Accepted: 31 October 2019

Published: 30 December 2019

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*Keywords:* Big five personality traits, physical activity participation, University students

## INTRODUCTION

Regular physical activity participation and its benefits for an individual's mental and physical health have been well-recognized and documented in studies (e.g. Trost et al., 2002; Kilpatrick et al., 2005; Janssen & LeBlanc, 2010). Malaysia as a developing and industrialized country has led to rapid changes in an individual's lifestyle, where Malaysia reported the highest obesity rates in Southeast Asia (Chan et al., 2017), with a total of 44% men and 49% women were discovered to be obese and the likelihood of being overweight was 45% in Malaysia ("Malaysia's obesity", 2014). Ghee (2016), pointed out that the number of overweight individuals' had increased by more than 60% over the years from 1996 to 2003 and is now an ongoing issue that plagues developing countries. All these findings pointed at the ongoing changes in lifestyle habits practiced by Malaysians and increased concern. To boost participation in sport and exercise, it has led to numerous attempts seeking to identify the various factors linked with regular physical activity participation from a psychological perspective.

Personality is seen to play a contributing factor that affects exercise frequency or physical activity participation (Lewis & Sutton, 2011; Rhodes & Smith, 2006; Wilson & Dishman, 2014) of an individual; pointing towards the interconnection between personality and physical activity (Allen et al., 2016; Allen & Laborde, 2014). An individual's personality may be one of the factors contributing to physical inactivity (Ebstrup et al., 2013) or high levels of physical

activity participation (Stephan et al., 2014). Agreeableness, Neuroticism, Extraversion, Conscientiousness, and Openness have been used extensively to evaluate the relationship amongst personality and physical activity participation (Lochbaum et al., 2007; Siegler et al., 1997) as these five personality domains encompass a number of more specific traits that are defined as facets (Allen et al., 2013). Besides that, epidemiological evidence pointed at the drop in physical activity levels when transitioning from secondary to tertiary education (Kilpatrick et al., 2005) that is caused not only due to a change in their environment but also in their personalities as well. McAdams and Olson (2010) stated that individuals between the ages of 18 and 30 usually demonstrated the utmost change in their personalities due to transitioning to young adulthood from adolescence where they usually would indicate a rise in Conscientiousness and Agreeableness but a drop in Neuroticism. This is critical as it may reflect the shift in physical activity participation levels across an individual's lifespan. Lütke et al. (2011)'s study indicated an increase in Openness as they typically became more matured and accustomed, emotionally stable and accountable (Leikas & Salmela-Aro, 2015). However, there seems to be an inconclusive correlation between physical activity participation and certain personality traits (Rhodes & Smith, 2006; Wilson & Dishman, 2014). Furthermore, Allen and Laborde (2014), pointed out that this might be due to personality traits seen as precursors to physical activity levels

instead of the bidirectional associations where participation in physical activity might contribute towards changes in an individual's personality makeup. The shift to tertiary from secondary education is not a stress-free process and can be taxing most of the time due to academic pressure and time management. Whereas Kutty et al. (2015) emphasized the likelihood of reduced changes that an individual might participate in healthy behaviors such as physical activity and proper dietary habits. This is mainly due to the importance and emphasizes that parents place on academic excellence instead of motivating their children to be more active physically (Kelishadi et al., 2010). El-Gilany et al. (2011) carried out a study on 1708 University students in Egypt backed this assertion as around 41% of students testified time restrictions due to the priority placed on academic excellence by parents. Furthermore, females have pointed out the issue of safety as a barrier towards physical activity participation, where feelings of insecurity to partake in physical activity due to the fear of facing unsolicited circumstances that may affect their safety (Kelishadi et al., 2010). Facility accessibility in the university is also one of the barriers to being active physically is mentioned due to the absence of sports amenities made available for students, poor upkeep of amenities and the fear (Kelishadi et al., 2010).

From the existing studies, the link between physical activity participation and personality is still inconclusive. Furthermore, there is a lack of current

research done within Malaysia in regards to the relationship and impact of the personality traits towards physical activity participation among young adults based on their modes of physical activity. Young adulthood is important in an individual's developmental stage where they not only display a great change in physical activity level but also the most changes to their personalities. Therefore, our purpose was to further understand the relationship of different personality traits on physical activity participation choices and to further explain the dynamic and complex relationship tying both an individual's personality and physical activity participation levels together.

## METHODOLOGY

### Subjects

A convenience sample of 117 males and 88 females (205 subjects;  $M$  age = 20.69;  $SD$  = 1.465) were recruited from a local institution of higher learning in Malaysia. Subjects of this research were informed that participating in this study was done voluntarily and any data collected were purely for scientific purposes.

### Measures and Instruments

**Personality.** Personality traits were assessed using the 44-item version of the Big Five Inventory (BFI; John & Srivastava, 1999), using a 5-point Likert scale, ranging from 5 = Agree Strongly, 4 = Agree a Little, 3 = Neither Agree nor Disagree, 2 = Disagree a Little, 1 = Disagree Strongly. The Big-Five Inventory consisted of five expansive personality dimensions, namely

Openness (10-item), Agreeableness (9-item), Extraversion (8-item), Neuroticism (8-item) and Conscientiousness (9-item). However, there were no reported local reliability and validity for the instrument. A pilot study did for BFI showed a strong validity and reliability; and reported as follows, Openness (0.65), Agreeableness (0.57), Extraversion (0.75), Neuroticism (0.85), and Conscientiousness (0.70).

**Physical Activity.** The physical activity level of participants' were assessed using the 4-item self-administered Godin-Shepard Leisure-Time Exercise Questionnaire (GSLTEQ; Godin & Shepard, 1985; Gordin, 2011). Completion of the questionnaire was based on a 7-day period of at least 15-minutes of physical activity according to the number of times one partakes in mild, moderate, and strenuous leisure-time physical activity. The scores of the number of times one partook in mild, moderate, and strenuous intensity multiplied by a corresponding Metabolic Equivalent of Task (MET) value, such as 3, 5 and 9 respectively provided the scores for each activity. Leisure score indexes (LSI) obtained was by summing up all three scores expressed in arbitrary units. GSLTEQ showed the reliability of 0.97 (Sari & Erdogan, 2016) and was considered valid and reliable locally (Kok et al., 2010).

### **Procedure**

Approval from the Ethics Committee of the local institution of higher learning obtained allowed this research study to

proceed forward. Subjects from each faculty were approached and enquired on their willingness to partake in this study. Subject's consent was acquired with a consent form that detailed the area, scope, and objective of study. Before answering the questionnaires, a copy of the consent form was given, that subjects were required to fill in. 3 questionnaires for the study detailing on (1) Participant Information (2) Big Five Inventory and (3) Godin-Shepard Leisure-Time Exercise Questionnaire took about 20 minutes to be completed and subjects were asked to answer all questions as truthful as possible. The researcher collected back all completed questionnaires.

### **Statistical Analysis**

Data gained from the study were analysed using the SPSS version 21; basic descriptive statistics tabulated according to mean  $\pm$  SD of the observed variables for personality traits and physical activity participation. A correlation analyses used looked at the association concerning personality traits (Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness) and physical activity participation of individuals with correlation analysis. The differences in relevant variables were calculated utilizing the univariate analysis of variance and independent t-test.

## **RESULTS**

Table 1 reports the descriptive information for all measured variables in relation to the demographic data of the participants.

Table 1  
Descriptive statistics

	N	Extraversion		Agreeableness		Conscientiousness		Neuroticism		Openness	
		M	S.D	M	S.D	M	S.D	M	S.D	M	S.D
Gender											
Male	117	26.59	±6.672	32.35	±5.645	30.05	±5.580	23.19	±6.231	33.36	±5.502
Female	88	26.10	±5.083	31.72	±5.328	29.36	±5.173	24.89	±5.216	32.81	±4.889
Age Group											
17-20	88	25.85	±6.037	32.23	±5.381	29.67	±5.403	24.08	±5.865	31.93	±4.533
21-24	117	26.78	±6.025	31.97	±5.620	29.82	±5.432	23.79	±5.886	34.02	±5.571
Level of Program											
Diploma	72	25.07	±6.036	31.86	±5.002	29.14	±5.351	24.17	±5.743	31.17	±4.965
Degree	133	27.09	±5.933	32.20	±5.77	30.09	±5.428	23.78	±5.946	34.18	±5.099
Applied Sciences	97	27.49	±6.566	32.69	±5.763	31.47	±5.750	22.23	±6.029	33.82	±5.364
Computing Sciences	13	22.69	±4.922	31.15	±3.648	29.46	±4.013	29.69	±4.111	31.00	±5.115
Accounting, Finance, and Business	58	25.79	±4.690	30.57	±5.154	28.36	±5.046	25.55	±5.219	32.16	±4.720
Area of Study											
Engineering	7	27.29	±4.645	32.86	±4.059	34.29	±3.450	23.29	±4.348	34.29	±7.342
Built Environment	9	22.22	±5.118	32.67	±3.808	29.44	±3.877	27.22	±5.333	34.56	±3.745
Social Sciences and Humanities	21	26.62	±6.793	33.48	±6.638	29.10	±5.638	23.05	±5.408	34.14	±5.525

Table 1 (Continued)

	N	Extraversion		Agreeableness		Conscientiousness		Neuroticism		Openness	
		M	S.D	M	S.D	M	S.D	M	S.D	M	S.D
Program											
Year 1	25	27.88	±6.990	34.68	±4.516	31.16	±4.230	22.48	±5.059	33.16	±4.230
Year 2	94	25.97	±5.956	31.72	±5.462	29.71	±5.804	24.00	±6.142	32.13	±5.361
Year 3	78	26.29	±5.880	31.72	±5.578	29.42	±5.246	23.87	±5.546	34.18	±5.379
Year 4	8	27.38	±5.476	31.63	±6.906	29.13	±5.617	27.88	±7.039	34.38	±3.462
Mode											
Individual Sport	120	25.88	±5.872	32.03	±5.731	30.00	±5.722	24.60	±6.040	33.38	±5.104
Group Sport	85	27.09	±6.218	32.14	±5.208	29.41	±4.941	22.95	±5.499	32.76	±5.442

Table 2 reports the correlation results between the personality traits and physical activity participation.

Table 2  
*Relationship between Personality Traits and Physical Activity Participation*

	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Physical Activity Participation	0.160*	0.100	0.002	-0.082	0.148*

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

Physical activity and different personality dimensions have been shown to have a bidirectional relationship (Allen et al., 2016), where it may be one of the reasons that contribute towards physical inactivity involvement (Ebstrup et al., 2013) or high levels of active involvement in physical activity (Stephan et al., 2014) in individuals. Ingledew and Markland (2008) stated that personality influenced the different motives towards participating in physical activities, sport or exercise. With that being said, it can be said that Study results had demonstrated that personality traits: Extraversion ( $r = 0.160$ ,  $p = 0.022$ ) and Openness ( $r = 0.148$ ,  $p = 0.034$ ) demonstrated a positive relationship with physical activity involvement of college students.

Extraversion looks towards one's tendency to find strong sensory stimulation

in the task/activities that they undertake. Study results demonstrated in terms of area of study that students undertook in their tertiary education were significantly different [ $F(5,199) = 2.750$ ,  $p = 0.020$ ]. The results highlight the varying personalities of students between different areas of study and university programs.

Neuroticism refers to the tendency of experiencing unpleasant and negative emotions (e.g. fear, anxiousness, pessimism, sadness, and insecurity). As observed from Table 4, the study results point out that based on gender, it was significantly different ( $M = 23.92$ ,  $SD = 5.864$ ,  $p = 0.035$ ) and mode of physical activity ( $M = 23.92$ ,  $SD = 5.864$ ,  $p = 0.047$ ) was also significant when comparing between individual and group activities.

Openness assesses an individual's tendency to seek out new experiences and

Table 3

*Extraversion and physical activity participation according to area of study*

	F	Sig.
Area of Study	2.750	0.020*

Table 4

*Neuroticism and physical activity participation according to gender and types of activity*

Measure	Category	N	Mean	SD	F	Sig.
Gender	Male	117	23.19	6.231	4.038	0.035*
	Female	88	24.89	5.216		
Type of Activity	Individual Activities	120	24.60	6.040	1.082	0.047*
	Group Activities	85	22.95	5.499		

Note: SD = Standard Deviation; \* $p < 0.05$ , two-tailed test

Table 5  
*Openness and physical activity participation according to age group*

		N	Mean	SD	F	Sig.
Age Group	17-20	88	31.93	4.533	2.636	0.005*
	21-24	117	34.02	5.571		

Note: SD = Standard Deviation; \* $p < 0.05$ , two-tailed test

ideas. Our results showed that according to age group it was significant ( $M = 23.92$ ,  $SD = 5.864$ ,  $p = 0.005$ ). This highlights the association between openness and the level of involvement in physical activity across an individual's lifespan.

## DISCUSSION

Results (Table 2) from the study showed that there were no correlations between personality traits: Agreeableness, Neuroticism, and Conscientiousness with physical activity participation among college students. The relationship between physical activity and extraversion is due to the person's tendency to seek strong sensory stimulation by being involved in physical activity as a means of feeding their desire of being active physically, desiring positive feelings and sensory stimulations (Rhodes & Smith, 2006). Tolea et al. (2012) and Wilson & Dishman (2014) stated that extrovert individual's motives towards participating in physical activity were not just to obtain the benefits of physical activities, but it might also be due to the need to feed their social and outgoing characteristics by exposing themselves in different environments.

The link between physical activity participation and openness between college students showed similar results as other prior research (Rhodes & Smith, 2006;

Wilson & Dishman, 2014). According to Table 5, results showed that individuals with high levels of openness were more receptive, flexible, curious, imaginative and broad-minded towards new experiences and activities which could motivate individuals towards a variety of social activities and developed an understanding to the benefits of physical activity participation (Ingledeew & Markland, 2008), which increased their engagement in physical activity (Rhodes & Smith, 2006). Adolescence and the transition stage from high school to tertiary education are a critical developmental stage where one undergoes the greatest changes in personality (McAdams & Olson, 2010). Participation in physical activity or sports of a high level of extraversion and openness individuals are more likely to engage in any form of activities from physically demanding activities to sedentary activities such as seeing movies and engage in it continuously.

Neuroticism refers to the negative emotional states of the individual where our results showed a significant difference between physical activity participation and neuroticism according to gender. Results (Table 4) obtained were similar to the findings from previous research when comparing personalities between sexes, where males had lower neuroticism



compared to females (Costa et al., 2001; Weisberg et al., 2011). According to Stake and Eisele (2010), this may be because women are more likely to face more depression and nervousness as the neuroticism domain encompasses a wide-ranging of mental health variables, such as depression, anxiety and insecurities. However, it is important to note that regular participation in social activities from physical exercise groups to daily socialization among friends could have adverse effects on an individual that includes body-image concerns and disordered eating behaviour. High levels of neuroticism may be a factor that inhibits individuals from their attempts to participate in social activities and or even reduces their exposure to physical activity (Wilson & Dishman, 2014).

## CONCLUSION

The study findings demonstrated that Extraversion and Openness were positively related to the college students' physical activity participation as found in previous researches. The results support that personality traits may be a factor contributing to an individual's physical activity participation based on gender, mode of physical activity and age groups. In short, one's involvement in physical activity can be determined or affected by one's personality traits. However, the participants' age range may include a wider range and should cover adolescents and young adults from tertiary education and high school to highlight the transition phase from adolescence to young adults.

Further studies are also required to identify the relationship between personality traits and the mass population's physical activity participation and prolonged involvement.

## ACKNOWLEDGEMENT

We would like to thank the respondents of this study for their cooperation. We would also like to express our heartfelt gratitude to the Sports and Exercise Science Department of Tunku Abdul Rahman University College for their support in this research.

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