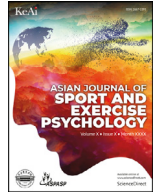




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Goal content and attitudes toward physical activity among primary school students during COVID-19 conditional movement control order

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ARTICLE INFO

Keywords:

Goal content
Attitude
Learning
Social affiliation
Skill development

ABSTRACT

This study examined primary school students' goal content and attitudes toward physical activity during COVID-19 Conditional Movement Control Order. The participants were 312 students comprising 149 males and 163 females aged 11 and 12 years old from 3 primary schools in Sarawak, Malaysia. Participants were administered the Malay version of the Goal Content for Exercise Questionnaire Malay version (GCEQ; Chai et al., 2019) and Malay version of the Attitudes toward Physical Activity Scale (M-APAS; Jeswenny, 2019). The independent sample *t*-test revealed that there was a significant difference between gender for goal content in social affiliation, $t(310) = -2.18, p = 0.030$, and age groups for skill development, $t(310) = 2.35, p = 0.019$. In addition, there was a significant difference in learning for attitudes between gender, $p = 0.034$, and age groups, $p = 0.035$. Pearson correlation revealed a significant positive correlation between goal content variables and attitude variables ranging from a very weak correlation ($r = 0.13, p = 0.05$) to moderate correlation ($r = 0.57, p = 0.01$). These results suggest that sustainable interventions that integrate goal content and attitudes can improve long-lasting positive participation towards physical activity and promote a healthy attitude towards healthy living.

Introduction

Physical activity (PA) has always been of utmost importance in the development of one's physiological and psychological health (US Department of Health and Human Services et al., 1996). PA can increase one's level of fitness, control weight and prevent health problems that can carry over into adulthood (Physical Activity Guidelines Advisory Committee, 2018). In addition, physical inactivity is related to greater health risks such as obesity which can decrease the quality of life. PA plays an important part in the increasing obesity number among world countries including Malaysia. The National Health and Morbidity Survey (Institute for Public Health, IPH, 2019) has shown that the PA has increased to one in four adults aged 16 and above and overweight adults accounted for 50%. This unhealthy lifestyle has increased the risk of chronic non-communicable diseases among adolescents which will pose a major public health challenge during the world lockdown on the COVID-19 pandemic. This data was also consistent with the 2019 World Population Prospects (United Nations, Department of Economic and Social Affairs, Population Division, 2019) which showed Malaysia ranked the highest at 15.6%, Brunei (14.1%), Thailand (10.0%) and Indonesia (6.9%) in terms of obesity in South-East Asia.

PA in Malaysia were well-documented especially among the children and students (IPH, 2019, 2015 & 2011). The National Health and Morbidity Survey (IPH, 2019) has shown a continuous increase among

adults being overweight, obesity and abdominal obesity with 50% are overweight or obese, 52.6% have abdominal obesity as compared to NHMS 2015 (17.7%, 30.0%, 48.6%) and NHMS 2011 (15.1%, 29.4%, 45.4%) respectively. Moreover, the NHMS 2019 also showed that 29.8% of the children aged 5 to 17 years of age were overweight which were mainly due to lack of PA and poor diet which will more likely to become obese adults. In Malaysia, the prevalence of overweight and obesity among children and adolescents were also found to be associated with low level of PA, unhealthy diet, sedentary behaviour and lifestyles in Malaysia (Alagappan et al., 2019; Vikneswaran et al., 2015).

The linkage between overweight and obesity with factors such as unfavourable dietary habits, physical inactivity, prolonged screen exposure, short sleep period, environmental characteristics, and genetic factors remains a serious health problem (Hruby et al., 2016). Thus, changes in individual's lifestyles such as low and decrease in PA participation and an increase in sedentary behaviour are associated to the rapid technological development have led to overweight and obesity prevalence. However, Chan et al. (2017) found conflicting results in increasing overweight and obesity despite increased participation in PA among the Malaysian population. Children who have regular PA gained health benefits that can contribute to better health well-being (Riner & Sellhorst, 2013). An individual will gain health benefits through regular physical activity, especially among children. According to the U.S. Department of Health & Human Services (2019), children's participation in

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physical activity can reduce the risk of depression, enhance aerobic and muscular fitness, enhance bone health, promote ideal body composition and improve academic performance.

One of efficient measures to address this problem is through the participation of PA. It is beyond doubt that the isolation and lockdown periods have significantly changed one's physical activity behaviour due to the pandemic (Tison et al., 2020 & Wang et al., 2021). Furthermore, Dunton et al. (2020) reported that between pre-COVID-19 and early-COVID-19 period, parents perceived their children's PA experienced a decrease while their sedentary behaviour increases. The decrease in physical activity and increase in sedentary behaviour could be due to the lack of motivation to engage in physical activity during the isolation and lockdown periods. In a study by Farah et al. (2021), lack of motivation is one of the prominent factors that has impacted PA level during the COVID-19.

Therefore, one's participation in PA is synonymous with one's goal content and attitudes towards PA. The goal content which lies within the Self-determination Theory (SDT; Ryan & Deci, 2000) differentiates between intrinsic and extrinsic goals. Intrinsic goals are related to acquisition of things that are deemed meaningful, values, interests and personal potential which can satisfy the basic needs of SDT. Whereas, extrinsic goals are reflected externally which are related to status, fame, image, recognition and rewards. The engaging of either these two goals on the undertaking of PA will result in different outcomes. Sebire et al. (2009) and Allen (2003) stated that extrinsic goals were associated with anxiety, discomfort and self-esteem, and intrinsic goals were associated with self-esteem, well-being, attention, fun and satisfying the basic psychological needs.

The attitudes of the students towards PA is how they perceive in their approaches in engaging in PA. The students' accomplishment and success in the PA activities would reinforce their continuity in PA. Therefore, if they did not achieve much success in the PA activities, it would demotivated them to participate in PA. The goals and attitudes towards PA are often related to gender and age groups as the mediating role. Boys tended to show higher positive attitudes which were challenging and of higher intensity. Whereas, girls tended to displayed favourable attitudes which emphasized aesthetics such as dance, gymnastics, swimming and aerobics (Davison et al., 2002).

Whereas PA and age also differed whereby, older students are more likely to be less active showing that PA participation tend to decrease as they get older. Based on a systematically reviewed of twenty-seven articles had shown that physical inactivity were high during childhood and adolescence (Lounassalo et al., 2019). The regular participation of PA which is associated with one's goals and attitudes can lead to better health and quality of life (Christodoulos et al., 2006). Therefore, developing good goals and attitudes toward PA is a vital step for one to stay healthy. This is especially important in times of the current COVID-19 pandemic which has severely impact the levels of PA among children in reducing their health-related quality of life (Ten Velde et al., 2021). Inevitably, a better understanding of the primary school students' goal and attitudes would provide invaluable feedback to help the PE educators plan, strategize and make better teaching-related choices according to the students' learning motivation and self-management skills in PA participation during the pandemic. Additionally, a greater insight of the effect of the current pandemic on PA among children would provide better strategies and approaches for the children health and well-being in the future.

Thus, this study aimed to examine factors that influenced primary school students' goal content and attitudes toward physical activity. In addition, this study also examined differences in goal content and attitudes between gender and age, and the relationship between goal content and attitudes' factors. This study will enable PE educators to plan suitable teaching and learning activities according to the students' level and abilities based on the goal content and attitudes towards PA at the current and future similar pandemic that may occur.

Material and methods

Participants

The participants were 312 primary school students (Year 5 and 6) from 3 primary schools in Sarawak, Malaysia. The participants comprised of 149 females (47.8%) and 163 males (52.2%) aged 11 (51.9%) and 12 years old (48.1%) (1.48 ± 0.50). The participants were involved in sport, such as track and field (42.9%), badminton (17.9%), football (14.7%), netball (11.5%), handball (6.4%), basketball (2.6%), sepak takraw (2.2%), volleyball (1.0%) and swimming (0.6%). Sample size calculation was done using G*Power 3.1.9.7. By selecting test family of t-tests for means difference between two groups, with effect size of 0.4, alpha value of 0.05 and power of 0.9, the estimated sample size was 266. Thus, the total sample size of 312 in this study was acceptable.

The questionnaires were administrated to the participants via online with the consent of the students and teachers. The institutional approval (KPM.700-3/27/1 JLD.7) and consent were obtained whereby the student's participation were voluntary and assured of their confidentiality. The study was conducted from July to September 2020 in accordance to the Standard Operating Procedures guidelines set by the Ministry of Health and Ministry of Education in Malaysia when the schools were reopened in July 2020 under the Conditional Movement Control Order.

Measures

The Malay version of the Goal Content for Exercise Questionnaire (GCEQ; Chai et al., 2019) was utilised in assessing goal content pertaining to physical activity. The 20 items GCEQ Malay version consists of 5 factors measuring social affiliation (4 items), image (4 items), health management (4 items), social recognition (4 items), and skill development (4 items). Students responded to all measures on a 5-points Likert scale, ranging from 1 (*Completely Disagree*) and 5 (*Completely Agree*). The GCEQ demonstrated good validity with composite reliability ranging from 0.78 to 0.85 (Chai et al., 2019). Whereas, the Malay version of the Attitudes toward Physical Activity Scale (M-APAS; Jeswenny, 2019) was utilised in measuring the attitudes towards physical activity. The M-APAS was adapted from the Attitudes towards Physical Activity Scale (Mok et al., 2015). The 35 items APAS measure 7 factors; benefits (6 items), importance (3 items), learning (4 items), self-efficacy (3 items), fun (3 items), fitness (7 items) & personal best (5 items). Students responded to all measures on a 7-points scale with 1 (*Strongly Disagree*) and 7 (*Strongly Agree*). The overall M-APAS demonstrated good internal consistency of 0.90 while M-APAS factors showed moderate to high validity with Cronbach's alpha ranging from 0.31 to 0.80 (Jeswenny, 2019).

Procedure

Data analysis

The data were analysed using Statistical Package for the Social Science (SPSS) 27.0. Descriptive statistics, mean and standard deviation were used to describe the factors that influence students' goal contents and attitudes toward physical activity. Whereas, independent sample t-tests were used to examine the gender and age groups goal content and attitudes towards physical activity. The Pearson's correlation was used to examine the relationship between goal contents' factors and attitudes' factors toward PA.

Results

Table 1 shows the demographic characteristics of the participants. The participants were 312 primary school students aged 11 and 12 years old from 3 primary schools in Sarawak. The participants include 149 males (47.8%) and 163 females (52.2%). In terms of age, 162 (51.9%) students were 11 years old and 150 (48.1%) students were 12 years old.

Table 1
Demographic Characteristics of the Participants.

Characteristics	Frequency (F)	Percentage (%)
Gender		
Male	149	47.8
Female	163	52.2
Age		
11	162	51.9
12	150	48.1

Table 2
Factors that Influence Students' Goal Content and Attitudes toward Physical Activity.

Factors	M	SD
GCEQ		
Health Management	6.00	1.01
Skill Development	5.52	1.22
Social Affiliation	4.98	1.32
Image	4.47	1.49
Social Recognition	4.44	1.77
M-APAS		
Benefits	4.09	0.58
Personal Best	3.95	0.76
Fun	3.86	0.69
Fitness	3.73	0.76
Importance	3.60	0.88
Self-efficacy	3.54	1.33
Learning	3.12	1.00

Table 3
Independent t-test of Goal Content based on Gender

Factors	Male		Female		t-test		
	M	SD	M	SD	t	df	p
Social Affiliation	4.81	1.31	5.13	1.32	-2.177	310	0.030*
Image	4.57	1.48	4.39	1.50	1.079	310	0.281
Health Management	5.91	1.03	6.07	0.98	-1.399	310	0.163
Social Recognition	4.48	2.04	4.40	1.48	.357	310	0.721
Skill Development	5.46	1.26	5.59	1.18	-.938	310	0.349

Table 2 shows that health management (6.00 ± 1.01) was the most important factor that influence students' goal content toward physical activity, followed by skill development (5.52 ± 1.22), social affiliation (4.98 ± 1.32), image (4.47 ± 1.49) and social recognition (4.44 ± 1.77). For the APAS, benefits (4.09 ± 0.58) was shown as the factor that influenced students' attitude toward physical activity the most, followed by personal best (3.95 ± 0.76), fun (3.86 ± 0.69), fitness (3.73 ± 0.76), importance (3.60 ± 0.88), self-efficacy (3.54 ± 1.33) and learning (3.12 ± 1.00).

As shown in Table 3, the result revealed a significant difference in social affiliation whereby females (5.13 ± 1.32) have higher social affiliation than males (4.81 ± 1.31). However, there were no significant differences for the other factors in goal content.

As shown in Table 4, the results showed no significant differences in all variables except for learning. The female (3.24 ± 0.95) scored higher in learning as compared to male (3.00 ± 1.05).

As shown in Table 5, the results revealed no significant differences for all variables for goal content except for skill development. The younger 11 years old (5.68 ± 1.15) students scored higher in skill development as compared to 12 years old (5.36 ± 1.27) students.

Table 5 shows no significant differences in all variables except for learning. Overall, the 11 years old students (3.24 ± 1.10) scored higher in learning as compared to 12 years old students (3.00 ± 0.88). (see Table 6)

As shown in Table 7, the results showed very low to moderate but significant correlation between the factors of goal content and attitude

Table 4
Independent t-test on Attitudes based on Gender

Factors	Male		Female		t-test		
	M	SD	M	SD	t	df	p
Benefits	4.04	0.62	4.13	0.55	-1.325	310	0.186
Importance	3.53	0.91	3.66	0.85	-1.377	310	0.170
Learning	3.00	1.05	3.24	0.95	-2.131	310	0.034*
Self-efficacy	3.42	0.85	3.64	1.65	-1.429	310	0.154
Fun	3.82	0.70	3.89	0.67	-0.826	310	0.409
Fitness	3.72	0.78	3.74	0.74	-0.143	310	0.886
Personal Best	3.90	0.80	4.00	0.73	-0.991	300	0.322

Table 5
Age groups Differences in Goal Content

Factors	11		12		t-test		
	M	SD	M	SD	t	df	p
Social Affiliation	5.00	1.45	4.96	1.18	0.240	305	0.811
Image	4.61	1.59	4.31	1.36	1.831	308	0.068
Health Management	6.00	1.08	6.01	0.93	-0.262	310	0.793
Social Recognition	4.55	1.62	4.32	1.91	1.183	310	0.238
Skill Development	5.68	1.15	5.36	1.27	2.350	310	0.019*

Table 6
Independent t-test of Attitude based on Age Groups

Factors	11		12		t-test		
	M	SD	M	SD	t	df	p
Benefits	4.09	0.60	4.08	0.56	0.093	310	0.926
Importance	3.69	0.95	3.50	0.78	1.872	306	0.062
Learning	3.24	1.10	3.00	0.88	2.123	304	0.035*
Self-efficacy	3.67	1.67	3.39	0.78	1.859	310	0.064
Fun	3.91	0.73	3.80	0.63	1.524	309	0.128
Fitness	3.79	0.84	3.67	0.65	1.381	301	0.168
Personal Best	3.94	0.79	3.95	0.73	-0.049	310	0.961

ranging from 0.13 to 0.57. Learning and social recognition showed the lowest correlation (r = 0.13) whereas fun and fitness showed the highest correlation (r = 0.57).

Discussion

Goal content and attitudes toward PA play an important role in children's participation in physical activities. Therefore, it is important to examine children's goal content and attitudes toward physical activity to enhance their frequency of participation in physical activities in order to sustain physical activity and health over a long period of time during the present COVID-19 pandemic.

Though the prevalence of overweight and obesity have shown a gradual increase among adolescent over the years associating with physical inactivity (Alagappan et al., 2019; IPH, 2019; Ministry of Health Malaysia, 2015), the current study showed positive goal content outcomes revealing that primary school students showed their highest rating for health management factor that influenced their goal content in physical activity. This finding is consistent with past studies (Aleksavska-Velickovska et al., 2018; Christodoulos et al., 2006) which showed that individuals were mainly motivated to engage in physical activity to enhance their health.

In addition, it was revealed that benefits factor influences students' attitudes toward physical activity the (Alagappan, Rampal, & Zailah, 2019; Sobia Zaman, Asif Khurshid Mian, & Fraz, 2018) most. This result supports past study by Sobia et al. (2018) that showed health factors still played an important role for individuals to engage in physical activities. This is because an individual understands the importance of health through a healthy lifestyle. Sobia et al. (2018) reported that students' attitudes toward health were high because they

Table 7
Correlation between Goal Content and Attitudes

Factors	I	SR	SA	HM	SD	BN	IM	LR	SE	FN	FS	PB
SR	0.51**	-	0.46**	0.23**	0.29**	0.27**	0.29**	0.34**	0.24**	0.32**	0.31**	0.23**
SA	0.53**	0.46**	-	0.32**	0.42**	0.34**	0.38**	0.40**	0.28**	0.42**	0.39**	0.26**
HM	0.28**	0.23**	0.32**	-	0.36**	0.27**	0.21**	0.13*	0.15**	0.31**	0.33**	0.33**
SD	0.36**	0.29**	0.42**	0.36**	-	0.39**	0.41**	0.21**	0.25**	0.38**	0.40**	0.35**
BN	0.29**	0.27**	0.34**	0.27**	0.39**	-	0.46**	0.31**	0.24**	0.51**	0.54**	0.45**
IM	0.35**	0.29**	0.38**	0.21**	0.41**	0.46**	-	0.43**	0.33**	0.55**	0.47**	0.41**
LR	0.39**	0.34**	0.40**	0.13*	0.21**	0.31**	0.43**	-	0.38**	0.39**	0.42**	0.23**
SE	0.28**	0.24**	0.28**	0.15**	0.25**	0.24**	0.33**	0.38**	-	0.38**	0.39**	0.34**
FN	0.34**	0.32**	0.42**	0.31**	0.38**	0.51**	0.55**	0.39**	0.38**	-	0.57**	0.52**
FS	0.34**	0.31**	0.39**	0.33**	0.40**	0.54**	0.47**	0.42**	0.39**	0.57**	-	0.57**
PB	0.29**	0.23**	0.26**	0.33**	0.35**	0.45**	0.41**	0.23**	0.34**	0.52**	0.57**	-

Note.

** $p < 0.01$,

* $p < 0.05$; I=Image; SR=Social Recognition; SA=Social Affiliation; HM=Health Management; SD=Skill Development; BN=Benefits; IM=Importance; LR=Learning; SE=Self-efficacy; FN=Fun; FS=Fitness; PB= Personal Best

were aware of the importance of physical activity in providing better health and mental benefits. Both these factors could be attributed to the PE teachers playing a significant role in establishing positive effects on the students' attitudes towards physical activities and health.

This study revealed that female students exhibited social affiliation more than male students. This finding is in line with other research [Allen \(2003\)](#) which showed that social motive is important for females to engage in physical activities. This implied that the role of social support would generate more interest and enjoyment in one's participation in physical activities and sports. In addition, the perception of belonging will lead to an increase in one's physical competence which will lead to more positive affect among the female students.

PA is a masculine activity whereas females are associated with femininity, therefore, they might feel uncomfortable doing physical activity. This is because females in Malaysia, specifically, are raised traditionally and bound to traditional gender roles ([Cheah & Poh, 2014](#)). [Cheah \(2011\)](#) revealed females tend to spend their time doing housework than physical activity due to traditional gender roles. The role of schools and significant others of providing equal attention, opportunities and intervention could have lessen the bridge of stereotyping physical activity but as a gender-neutral activity as the students progress through school.

The results found that females exhibited higher learning attitude than males. This means that females are more inclined to learn while doing physical activity. The school and family environment which encourage equality in sports and positive appraisal in learning increase their inherent in learning the values and benefits of physical activity. This finding contradicted with [Mohamed Afif Asyraf et al. \(2016\)](#) study which reported male students have more positive attitude toward physical activity in social experiences, seeking pleasure and aesthetic experiences.

The study also revealed that the 11 years old students were attracted to physical activity by the skill development goal content than 12 years old students. This finding is similar to [Uzunoz \(2015\)](#) and [Merkel \(2013\)](#) studies which found that 11 years old participation in physical activity was mostly associated with their cognitive and physical motives as well as developing skills in physical activity. The social support, encouragement and psychological well-being provided by the schools have help develop positive values in learning and competencies among the 11 years old. The 12 years old students are facing some challenges as they are sitting for their first major public examination whereby co-curricular activities have been excluded due to the academic-centric model of education. Therefore, they do not receive favourable support from schools and parents in their involvement in physical activity which indirectly affect their desire and capacity to develop their physical activity.

The study also found that 11 years old students exhibited learning attitudes more than 12 years old students. This finding supported [Kamtsios \(2011\)](#) study which revealed that elementary school students exhibited positive attitudes toward perceived athletic competence and perceived body attractiveness as compared with high and senior school students. This is in line with the children cognitive maturity as well as school environment which might not been given high emphasis on learning and improvement, and undervalued physical activities which is important in reducing sedentary behaviour among the students.

The present study revealed a moderate positive relationship between social affiliation, image, health management, social recognition, skill development, benefits, importance, learning, self-efficacy, fun, fitness, and personal best. The moderate strength of correlations could be due to the influence of other factors such as social support and interpersonal relationship. This social aspect is deemed important as it provides support and development of friendships which might motivate them to participate in physical activity. According to [Smith et al. \(2017\)](#), an individual that received more social support in physical activity tend to be physically active during leisure time especially if the social support comes from their family members. This means that social support plays an important role in determining one's health. The study was limited to the small sample size and 11 and 12 years old in which the findings cannot be generalised to the primary school population and younger students as a larger and balance samples in terms of gender, age and ethnicities are required to generalise the findings.

Conclusion

In conclusion, the goal content and attitudes toward physical activity should be considered to improve primary school students' participation in PA. The PE teachers, coaches and parents should explore opportunities within a conducive environment to generate positive attitudes and goal content among the primary school students to participate in more diverse physical activities. In addition, the initiation of on-going variety of strategies within the educational policies in instilling the values and life-long habits of PA can further enhance long-term engagement in PA. Therefore, there is a necessity for early PA interventions in young children starting from their parents which need to find sustainable approaches to support in activating their children towards an active lifestyle in any form of future pandemic lockdown.

Declaration of Competing Interest

The authors declare no conflict of interest.

Funding

The study is not supported by any funding

Acknowledgments

The authors like to express their gratitude to all participants for participating in the study.

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