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College Sports Club Participation, Companionship, and Regular Exercise Behavior: A Self-Determination Theory Perspectives

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Abstract

The purpose of this study was to examine the differences in sports club participation with companionship in self-regulated motivation and regular exercise behavior for college students. 508 responses retrieved and 443 were valid. All subjects were college students from three different regions, north, middle and south of Taiwan. Behavioral Regulation in Exercise Questionnaire for measuring self-regulated motivation, and two questions used to estimate regular exercise frequency by 5-point scale and intensity by 3-point scale. The personal data collected by several open questions. Reliability analysis, factor analysis, t-test, ANOVA, and hierarchical regression used to analyze the data. The results of the study indicated that four exercise participation types, sports club participation with company needs, non- sports club participation with company needs, sports club participation with no company needs, non- sports club participation with no company needs, have significant differences on self-regulated motivation and regular exercise behavior, in addition, five self-regulated motivation among 4 exercise participation types also have different predictive effects on regular exercise behavior. In conclusion, with self-determination theory perspective, based upon the existing evidence to provide a future approach to exercise motivation research to address unresolved issues in the field of exercise, and to make suggestions to promote the development of SDT and further studies.

Keywords: Exercise Club Participation, Companionship, Motivation, Self-determination Theory, Regular Exercise

Introduction

Insufficient physical activity has been identified as the leading risk factor for global mortality, breast and colon cancers, diabetes and ischemic heart disease burden (WHO, 2017). Therefore, the data shows 35.7% of male and female at age 18 to 24 who are doing regular exercise, with a third of young people being inactive in Taiwan (Minister of Education Sport Department, Taiwan, 2018). Colleges and universities where are young people at age 18-14 being educated are potentially crucial settings in which to implement interventions to help to promote exercise behavior throughout the life span. A large percentage of adolescents do not achieve moderate physical activity per week which are recommended by WHO, and continue to fail to achieve this amount of physical activity into adulthood (Gordon-Larsen, Nelson, & Popkin, 2004). Regular physical exercise and health lifestyles should be valued and improved constantly by late adolescences.

As children move towards adolescence, they spend increasing time with peers enhancing the potential for the norms and behaviors of peers to influence exercise or physical activity (PA) (Duncan, Duncan, Strycker, & Chaumeton, N. R., 2007). The peer relationships and friendships that are developed through physical activities, exercise, or sport offer important opportunities for companionship, support, and recreation. Findings from development psychology suggest that peers would have most influence on adolescent physical activity (Weinberg & Gould, 2018). Considering a potential role that peers and/or friends' influences may have on adolescents' PA. Borgers et al. (2016) have found that participation frequency and time spent on sports is higher among members of sports clubs in certain types of sports, in contrast to the frequency of engagement of non-organized sports participants. One aspect of his study will estimate that whether or not college sports club participants involve in more regular exercise behaviors than non-organized sport participants. Another aspect of this study, peer's companionship is important to consider in relation to exercise whether or not adolescence engage in more exercise with the needs of peer company than alone during exercise.

Self-determination theory (SDT) (Deci & Ryan, 1985; 2000) is the motivational theory that is currently developing the most research in this field and has been widely used in recent years to develop intervention strategies aimed at increasing student participation in PA (Fenton, Duda, & Barrett, 2016), sport and exercise (Hagger & Chatzisarantis, 2008). This theoretical perspective argues that behavior can be broadly categorized as intrinsically motivated, extrinsically motivated, or amotivated and has shown the important role of different types of motivation in inducing a number of different cognitive, behavioral, and affective outcomes (Deci & Ryan, 2000). *Intrinsic motivation* is the prototypical form of autonomous motivation and reflects engaging in a behavior in the absence of external contingency and for the inherent pleasure and satisfaction derived from the activity. The extrinsic motivation is the driving force of external influence, relatively, usually by more control, less autonomy. However, extrinsic motivation is the prototypical form of controlled motivation and based on the degree of continuing internalization or integration can be divided into four different motivational regulations, From the least to the maximum degree of self-regulated internalization, respectively, external regulation, introjected regulation, identified regulation, and integrated regulation. At the far left of the self-determination continuum is amotivation, the state of lacking the intention to act (Ryan & Deci, 2000). In this study, self-regulated motivation is the main issue of research and amotivation is excluded. Usually, higher self- determination or Autonomous forms of motivation have been shown to be significantly related to higher health behavior engagement while controlled forms are related to desistence and avoidance. This is because autonomous reasons for acting do not depend on external contingencies or cues and are self-regulated rather than other-regulated. intrinsic motivation has been found to be the strongest predictor of persistent exercise (Deci & Ryan, 2000; Chatzisarantis et al., 2003). Standage, Duda, and Ntoumanis, N. (2003) also indicated that self-determined motivation can predict the PA intentions of leisure time. The results showed the more self-determined, the more behavioral adaptation. Researchers have found that the intrinsic motivation was able to predict the degree of effort and the persistence of PA after school, external regulation and amotivation can predict the boredom of physical education. (Hagger, et al., 2007).

This study focuses on the differences among four exercise participation types which are sports club participation with peer company needs (type 1), non-sports club with peer company needs (type 2), sports club participation with no peer company needs (type 3), and non- sports club with no peer company needs (type 4) on the five different self-regulated motivation, and regular exercise behavior. Moreover, this study also focuses on the predictive effects of self-regulated motivations in four exercise participation types on regular exercise behavior. The researcher assumes that sports club participation and peer companionship play a vital role in determining university students' exercise self-regulated motivation and regular exercise behavior. Based on research literatures, we set two hypotheses for this study. First, there would be significant differences among four exercise participation types on self-regulated motivation and regular exercise behavior. Second, there would be different predictive effects of self-regulated motivations in four exercise participation types on regular exercise behavior for university students.

Method and Materials

Participants

Pilot data was obtained from 167 undergraduate students in National Yunlin University of Science and Technology. Formal study data was collected from 508 undergraduate students in three different universities of Taiwan. The total collected data was comprised 443 valid samples by 198 boys and 245 girls.

Measures

Behavioral Regulation in Exercise Questionnaire (BREQ-3) To measure exercise motivation, we used the Behavioral Regulation in Exercise Questionnaire (BREQ-3) of Wilson, Rodgers, Loitz, and Scime (2006). Based on the present study need, we revised original 24 items into 40 items in Chinese version that were rated on a 5-pointLikert-type scale ranging from 1 (totally disagree) to 5 (very strongly agree). 10 items containing amotivation factor were excluded through item-analysis process. The result of exploratory factor analysis showed 5 factors including 5 items of external regulation, 6 items of interjected regulation, 4 items of identified regulation, 5 items of integrated regulation, and 5 items of intrinsic motivation, with total 25 items remained. The total explanation of variance was 70.69% and

the analysis of internal consistency was satisfactory with Cronbach's alpha of .86~ .90 for five-dimension regulations. In the analysis data, Skew ranged from -.94 ~ .35, and kurtosis ranged from -1.75~ .95.

Regular exercise behavior Self-reported regular exercise frequency per week and average intensity each time were combined to measure regular exercise behavior. There was an item to filtered students who did not have regular exercise behaviors. Those subjects skipped other regular exercise related questions. Four levels of self-reported regular exercise frequency per week which were "Once exercise a week, twice a week", "three times a week scored 3", and "above three times a week" were scored 1, 2, 3, 4. On the other hand, the intensity of physical activity depends on students' previous exercise experience and their relative level of fitness. Based on WHO definition of physical activity intensity, three levels of self-reported exercise intensity were scored 1, 2, and 3. We manipulated the score of exercise frequency and intensity to be the independent variable of regular exercise behavior.

Statistical Analysis

Before analysis, missing values were imputed using the multiple imputation features of the IBM SPSS version 23 software. Item analysis and exploratory factor analysis were used to reduce items and to conduct dimensions of the revised BREQ-3 Chinese version. One-way ANOVA and Scheffé post hoc was used to examine the first hypothesis. Furthermore, hierarchical regression analysis was computed to examine the second hypothesis.

Results and Discussion

1. The Peterson Correlation between the Variables.

The independent variable of external, introjected, identified, integrated regulation, and intrinsic motivation (mean=2.86~4.06, SD=.70~.89) strongly related to the dependent variable of regular exercise behavior (mean=5.10 SD=3.21) (correlation coefficient =.23~.63, p<.01).

2. Dependent samples one-way ANOVA

With regular exercise behavior (exercise frequency*exercise intensity) as the dependent variable, revealed significant differences within 4 types of sport club participation. (F=3.66~19.91, P<.01). Means, standard deviations and F-ratios for the univariate analysis of variances are presented in Table 1. As shown, the Scheffé post hoc follow-up method indicated that type 2 scored significantly lower than other groups in introjected, identified regulation, only lower than type 4 in external regulation and lower than group in group 1, lower than type 1 and 3 in integrated regulation and regular exercise behavior. type 4 scored lower than type 1 and 3 in integrated regulation and regular exercise behavior, and only lower than type 1 in intrinsic motivation.

3. Hierarchical Regression Analysis

Two regression models were formulated in each group and independent variable of self-regulated motivation. The first model included gender as a control variable. In the second model, each self-regulated motivation was used to predict regular exercise behavior (see Table 2, model 1: gender only has listed in the external regulation). Hierarchical regression analysis has shown that only in type 2 external regulation can positively predict regular exercise behavior (β=.29, R2=.20, △R2=.19, F=16.94, df=165, p<.01), only in type 3 intrinsic motivation cannot positively predict regular exercise behavior, and in all groups introjected, identified, and integrated regulation can positively predict regular exercise behavior. Gender in these analyses was a significant predictor of regular exercise behavior.

Discussion

A major concern for university students is to promote their regular exercise behavior. Participation frequency and time spent on sport increase when participants engage with club-organized sport. Club-organized participants spent more days a week and time for leisure-time sport than non-club-organized sport (Borgers, et al., 2016). This study has conducted similar results which sports club participants with or without peer company needs have more exercise behavior a week than non-sports club participants with or without peer company needs. In adolescence, peers represent increasingly important role models and sources of social support for physical activity and for efficacy beliefs regarding activity (Duncan, et al., 2007). The result also revealed that non-sports club with company needs scored

significantly lower external, introjected, identified, integrated regulation, intrinsic motivation and regular exercise behavior. Non-sports club with company needs participants could be lack of social support and exercise role models in their school environments, both controlled motivation and autonomous motivation gradually decrease for doing regular exercise. It is important to explore more insight in participation behavior of potential participants to develop targeted regular exercise strategies for university students. On the other hand, external regulation only in type 2 can positively predict regular behavior and intrinsic motivation only in type 3 cannot positively predict regular behavior. Higher external regulation only in type 2 activates higher initiated. And students of type 3 could be initiated higher intrinsic motivation. The relationship of autonomous motivation (as integrated regulation and intrinsic motivation) and physical activity has been found to be partially mediated by self-regulation techniques, particularly self-monitoring. Self-regulatory techniques and self-monitoring interventions may benefit from fostering autonomous motivation by, for instance, addressing adolescents' using autonomy-supportive language, supporting positive interaction and relatedness with their peers (Hagger et al., 2007).

Conclusion

The current study implied that the climate of trust and personal agency could be generated by peers' support or in sport organizations and groups. self-regulatory techniques interventions between the relationship of self-regulated motivations and regular exercise behavior may be a further research issue for advance understandings.

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Table 1: One-way ANOVA Analysis of 4 types of sport participation on different self-regulated motivation and regular exercise behavior (N=443, **p*<.01).

Variables groups	external regulation		introjected regulation		identified regulation		integrated regulation		intrinsic motivation		exercise behavior	
(N)	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Goup1 (140)	3.84	0.73	3.00	0.97	3.97	0.67	3.69	0.70	4.32	0.65	6.33	3.21
Goup2 (168)	3.72	0.69	2.64	0.80	3.67	0.68	3.19	0.70	3.88	0.76	4.01	2.65
Goup3 (27)	4.05	0.60	3.35	1.07	4.13	0.72	3.78	0.83	4.22	0.74	7.19	3.41
Goup4 (108)	3.96	0.69	2.91	0.76	3.98	0.69	3.34	0.64	3.98	0.68	4.70	3.22
F	3.66*		7.86*		7.75*		15.94*		11.12*		19.91*	
post hoc	4 > 2		1 > 2、3 > 2 4 > 2		1 > 2、3 > 2 4 > 2		1 > 2、1 > 4 3 > 2、3 > 4		1 > 2、1 > 4		1 > 2、1 > 4 3 > 2、3 > 4	

Table 2: Hierarchical Regression Analysis: the predictive effects of five self-regulated motivations in 4 types of sport participation on regular exercise behavior (N=443, **p*<.01).

Independent variable	(type 1) sports club participation with company needs			(type 2) non-sports club participation with company needs			(type 3) sports club participation with no company needs			(type 4) non-sports club participation with no company needs		
	β	R^2 ($\triangle R^2$)	F (df)	β	R^2 ($\triangle R^2$)	F (df)	β	R^2 ($\triangle R^2$)	F (df)	β	R^2 ($\triangle R^2$)	F (df)
Model 1 gender	.27*	.07 (.07)	10.69* (138)	.34*	.12 (.11)	21.83* (166)	.26*	.07 (.03)	1.85 (25)	.15	.02 (.01)	2.60 (106)
Model 2 gender	.29*			.32*			.30*			.15		
External regulation	.17	.10 (.09)	4.31 (137)	.29*	.20 (.19)	16.94* (165)	.15	.09 (.02)	0.59 (24)	.23*	.08 (.06)	5.87 (105)
Model 2 gender	.21*			.31*			.21*			.17		
Introjected regulation	.27*	.14 (.13)	11.17* (137)	.26*	.18 (.17)	13.68* (165)	.48*	.29 (.23)	7.62* (24)	.27*	.10 (.08)	8.47* (105)
Model 2 gender	.25*			.32*			.38*			.15		
identified regulation	.26*	.14 (.13)	10.96* (137)	.38*	.26 (.25)	32.71* (165)	.44*	.25 (.19)	5.89* (24)	.38*	.17 (.15)	18.15* (105)
Model 2 gender	.19			.28*			.34			.15		
integrated regulation	.43*	.25 (.24)	33.57* (137)	.37*	.25 (.24)	30.13* (165)	.42	.24 (.18)	5.47* (24)	.32*	.12 (.11)	12.37* (105)
Model 2 gender	.23*			.28*			.27*			.16		
intrinsic motivation	.32*	.17 (.16)	16.83* (137)	.36*	.24 (.23)	26.95* (165)	.14	.09 (.01)	.53 (24)	.32*	.12 (.11)	11.84* (105)