

A Verification of Factors Influencing Taiwan College Students' Well-Being Model

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Abstract: The purpose of this study is to verify the impacts of college students' recreation sport participation, time management disposition, and positive emotions on their well-being. Accordingly, 12 universities in Central and Southern Taiwan were targeted to conduct the survey. Out of 600 distributed survey questionnaires, 522 valid answers were obtained with a high response rate of 87%. The analysis results found that college students' recreation sport participation exerted positive impacts on their time management disposition, positive emotions, and well-being. Additionally, the positive effects of time management disposition on positive emotions and well-being as well as of positive emotions on well-being were confirmed. Noteworthy, students' genders and their choices of whether to participate in sport clubs were indicated to be the important variables influencing their recreation sport participation, time management disposition, positive emotions, and well-being. Finally, based on the above findings, this study proposed several managerial and academic recommendations.

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1. Introduction

According to the survey of Mental Health Group, John Tung Foundation (2008) to Taiwanese college students concerning the correlation between subjective life stress and depression disposition, up to a quarter of college students have been suffered with severe depression as well as emotional problems and need help from professionals. Nowadays, college students encounter plenty of new situational stress including academic pressures, self-achievement pressures, pressures from other people's expectations, single-parent family problems, etc. Moreover, due to the unstable economic development in recent years, rising unemployment caused by many university graduates, unpaid leave methods in some enterprises, more and more students feel that life is full of stress and they tend to have a fear of no future for themselves. Therefore, how to help students get proper concerns from family, school and society in order to make their lives more fulfilling and meaningful, in other words, to promote their physical and mental health to improve life quality has become a topic that worth paying great attention to (Lee, 2012).

1.1 Well-being

Well-being has been widely considered to play an important role in human life quality since it can effectively reduce anxiety and depression, decrease life pressures, help with adjusting life's unpleasant incidents, and especially has a positive impact on human health (Berger & McInman, 1993). Further elaborating, Roysamb, Harris, Magnus, Vitterso and Tambs (2002) point out that well-being is a state of

mind, hence focused on discussing and evaluating individuals' positive personality traits and life experiences as well as related common nouns such as well-being, happiness, subject well-being, psychological well-being, life satisfaction, etc. since they are the important factors bringing people better lives.

1.2 Recreation sport participation

Recreation sport participation denotes people in their leisure time to freely choose to participate in physical sports or recreational sports which can help them feel happy, fun, and healthy (Shen, 1998). Therefore, recreation sport participation has been viewed as a participatory behavior into non-competition physical activities which does not emphasize victory; instead, the main purpose is to have fun and achieve health promotion (Chang, & Peng, 2009).

The extant literature has suggested many different methods to measure sport participation behavior, for instance the use of survey questionnaire to explore participation frequency (the number of participation times per week), participation duration (the total amount of time of participation per week), and exercise intensity (measure the activity's tiredness degree using the conscious scale).

Based on this premise and three above indicators, recreation sport participation in this study was calculated using the equation as follows:

Recreation sport participation = Frequency × (average intensity + duration)

From this equation, the achieved scores would represent sport participation behavior (Chang, 2009).

1.3 Time management disposition

Shi and Lai (2013) point out that time management is both a science and an art of living; additionally, effective time management can help companies not only improve efficiency but also reduce the associated administrative costs. Once employees use time management skills correctly, they can get more ample leisure time. Martin and Osborne (1989) propose effective time management include definitions of personal goals, prioritization, and goal achievement setting; hence, the use of proper plan table can help decrease time wastage to a minimum. In line with this, Macan, Shahani, Dipboye, and Phillips (1990) suggest time management should include the following components of distinguished demands, sorting according to their importance, and the corresponding allocation of time and resources based on the degree of importance. Moreover, Huang and Zhang (2001) refer time management disposition to the situation that individuals toward time function and value and the ways of time use express their psychological and behavioral characteristics, which involves a sense of time value, time control, time efficacy, etc. These three dimensions with high reliability and validity can be used as effective tools for evaluating time management disposition. In practice, time management counseling is an effective way to indirectly improve college students' social adaptability, stimulate their time management skills and time management efficacy, which in turn promote their academic learning efficiency and positive lifestyles, help them sufficiently understand their life contents and quality as well as self-improvement (Ding, 2007).

1.4 Positive emotions

Seligman, the founder of Positive Psychology theory, points out that previous psychologists mainly focused on how to correct people' psychological sickness (morbid) while did not care about how to help people build positive mental health (Seligman, 2002). Consequently, this researcher argues that the sufficient investigation of human strengths and virtues can effectively help people pursue a better life (Seligman, 2002), which has been paid attention to as the main research subjects regarding positive emotions of psychologists in recent years (Huang, 2009).

According to the widespread construction theories, positive emotions contain various concepts including joy, interest, contentment, pride, love, etc. Noteworthy, since these concepts have some characteristics in common and are perceived to be able to stimulate people' thought-action repertoire performance, cognition and attention toward them keep increasing (Fredrickson, 2001).

In general, since positive emotions beneficially assists human in surviving in times of hardship, they are acknowledged to exert great influences on human lives and well-being (Aspinwall, 2001).

2. Research framework and model construction

2.1 Recreation sport participation and time management disposition relationship

Advances in modern technologies have brought about more free time, which in turn increases the number of people engaging in leisure time activities. However, without proper planning and management, this engagement in leisure time activities can cause a waste of time and make the activities meaningless, in which people cannot get good leisure experience and benefits (Wang & Wu, 2005). Interestingly, several previous studies on free time management have explored that people with proper free time arrangements feel their free time is very happy and acknowledge that their lives are greatly meaningful (Kuo, Lin, & Kao, 2009). In line with this, good free time management has been indicated to positively affect athletes' leisure benefits and indirectly affect the training effect (Kuo & Kao, 2008).

Therefore, it has been suggested that once aiming to get good leisure experience and benefits, people in recreation sport participation must have good time management disposition. Accordingly, the first hypothesis was proposed.

H1: College students' recreation sport participation has a positive impact on their time management disposition.

2.2 Recreation sport participation and positive emotions relationship

As mentioned above, recreation sport participation refers to people in their leisure time freely choose to participate in physical activities. During participation in leisure sports activities, once people are able to give full focus on the activities without noticing time passing situations and no longer perceive surrounding environment of other issues, they can reach a sense of pleasure (flow experience) which makes them feel happy (Jackson & Csikszentmihalyi, 1999).

Previously, studies on exploring the impacts of recreation sport participation on psychological benefits have suggested that the engagement in physical activities can enhance people' psychological tranquility and viability, especially reduce anxiety and tension (Landers, 1994). In line with this, the frequent practice of Qigong exercises have been claimed to bring people better vitality, relaxing feelings, calmness, and peaceful emotions (Huang, Hwang, & Lu, 2007). Further elaborating, Fong, Hung, & Huang (2004) present that when doing

sports with higher positive emotions, in physiological exhaustion people would receive a sense of soothing.

In general, doing exercises regularly has been suggested to be an important element to get a healthy life, reduce anxiety, stress, depression and other negative emotions, increase positive emotions, and bring people joy and happiness. Based on this premise, the study puts forward the hypothesis as follows:

H2: College students' recreation sport participation has a positive impact on positive emotions.

2.3 Recreation sport participation and well-being relationship

Recreation sport participation has been claimed to have many benefits on individuals' physical and mental health; for instance, the involvement in regular physical activities would improve heart and blood vessels, reduce obesity, chronic disease, and other issues (Luke, Dugas, Durazo-Arvuzu, Cao, & Cooper, 2011; Tessier et al, 2007). From functional perspectives, once general individuals are health conscious, they would express better behavior control capabilities, get more life experience, improve relationships, enhance learning and work efficiency, achieve better self-esteem and self-confidence, etc., which in turn help them reach life satisfaction and well-being (Iwasaki, 2003). On supporting this idea, Argyle (1987) suggests that individuals' recreation activity participation can effectively generate well-being. Further examining, college students' recreation sport participation has been found to be positively correlated with their overall well-being (Huang, 2004; Wang, Chen, & Li, 2011). Finally, Lin (2004) on continuing exploring the relationship between recreation sport participation and well-being points out that well-being of people with continuous sport participation belongs to medium to high levels; additionally, the number of participation times per week and recreation sport participation seniority can effectively bring about well-being. Hence, the following hypothesis is proposed.

H3: College students' recreation sport participation has a positive impact on their well-being.

2.4 Time management disposition and positive emotions relationship

Toshio (2000) considers in people' lifestyle there is a very important relationship between how to maintain good life quality and how to properly design and distribute time use. General time use structure can reflect individuals' right time arrangements and the purposive perspective of time use degree (Bond & Feather, 1998). Good time management in organizations has been further claimed to be able to ease staff' pressures and tension (Jex & Elacqua, 1999).

In the extant literature concerning the correlation relationship between time management disposition and each factor of mental health dimension, time management disposition has been found to have significantly negative impacts on somatization disorder, depression and anxiety while exerting significantly positive influences on self-esteem and job satisfaction (Zhang, Huang, Feng, & Deng, 2001; Chen, Zhang, Zou, Yang, & Huang, 2005; Qin & Zhang, 2002). Furthermore, Zhang et al. (2001) on exploring the impacts of all factors of time management disposition on positive emotions using regression analysis finds that sense of time value and time efficacy have significant predictive power on positive emotions. In other words, higher time management disposition scores would lead to higher positive emotion.

Hence, the following hypothesis was deduced:

H4: College students' time management disposition has a positive impact on their positive emotions.

2.5 Time management disposition and well-being relationship

Fu (2010) on conducting a survey with Mainland students puts forward that well-being of students with high time management disposition is significantly higher than that of students with low time management disposition; additionally, students' time efficacy has a significantly predictive effect on subject well-being. This finding is in line with previous study of Kelly (2003) that students' time management disposition is significantly positive correlated with subject well-being and can effectively predict individuals' job performance, academic achievement, etc. Further investigating the relationships between three dimensions of time management disposition and subject well-being, Fan, Sun, and Liu (2012) find that time supervision and time control can significantly positively predict students' subject well-being index and time efficacy could significantly positively predict students' positive emotions and emotional balance while being able to significantly negatively predict negative emotions.

Accordingly, the following hypothesis was derived:

H5: College students' time management disposition has a positive impact on their well-being.

2.6 Positive emotions and well-being relationship

In 1930, a group of young Catholic nuns wrote down their own personal growth process including childhood important events, school life, and religious experience. 60 years later, three investigators through re-reading these documents and giving the scores noted that these nuns in their words used plenty of positive emotion words such as joy, interest, etc.

Noteworthy, their life expectancy extended for nearly 10 years longer than others (Danner, Snowdon, & Friesen, 2001).

In addition, Cohn, Fredrickson, Brown, Mikels, and Conway (2009) claim that positive psychology is an important theory since positive emotions can expand the scope of individuals' actions and thinking, enhance individuals' internal and external psychological resources (e.g., toughness, psychological well-being, social support), and thus enhance personal resilience under adversity. For instance, after the United States 911 disaster, it has been observed that positive emotions can buffer people' frustration and help people with tough characteristics restore life satisfaction and optimism (Fredrickson, Tugade, Waugh, & Larkin, 2003). Therefore, it has been believed that the enhancement of positive emotions can not only reduce the negative unpleasant emotions but also assist people in maintaining a healthy life and lasting happiness as well as increasing life satisfaction (Diener, Suh, Lucas, & Smith, 1999; Diener & Chan, 2011). Furthermore, Singer and Ryff (2001) suggest that since deep experience of positive emotions can effectively resist the pressure and disease, emotions are the catalyst of physical and mental health.

Based on the above studies, the following hypothesis was proposed.

H6: College students' positive emotions have a positive impact on their well-being.

Based on the proposed hypotheses, this study constructs the conceptual model as in Figure 1 as follows:

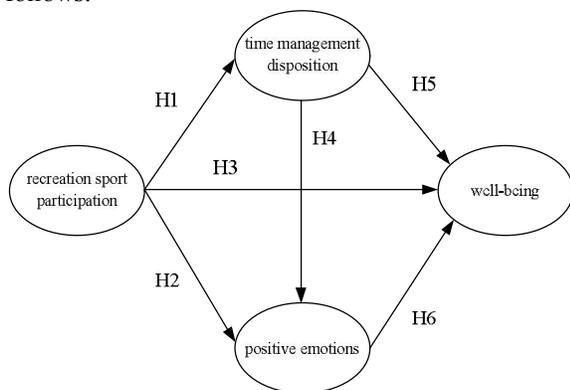


Figure 1 Conceptual model and hypotheses

3. Methods

3.1 Participants

In this study, 600 students of 12 schools in Central and Southern Taiwan were targeted for conducting the survey. After data recovery and excluding invalid questionnaires, 522 valid responses out of 579 returned survey questionnaires were

obtained, achieving the high effective response rate of 87.0%. Among the participants, male students accounted for 48.3% (252 students) while female were 51.7% (270 students). Concerning grade, freshmen were 27% (141 students), second-grade students were 28.4% (148 students), third-grade students were 27.4% (143 students), and fourth-grade students were 17.2% (90 students). Noteworthy, 135 students were recognized to participate in associations (25.9%) while 387 students were found not to participate in any sports associations (74.1%).

3.2 Measurements

Recreation sport participation scale

This study was based on the recreation sport participation questionnaire (Fox, 1987) to modify the existing questionnaires. As a result, the questionnaire contents included (1) sport participation frequency which referred to the average times of sports participation per week of the subjects, (2) sports participation duration which referred to the average duration of participation the subjects involved, being divided into five levels of "1" - 30 minutes, "2" - 31 to 60 minutes, "3" - 61 to 90 minutes, "4" - 91 to 120 minutes, and "5" - 120 minutes or more, (3) sport participation intensity which referred to whether the subjects actually got involved in every movement, being represented by five levels of "1" - totally not tired, "2" - not tired, "3" - a little tired, "4" - tired, and "5" - very tired.

Accordingly, recreation sport participation was calculated as follows:

Recreation sport participation = Frequency × (average intensity + duration)

As such, the higher achieved number indicated the higher the degree of recreation sport participation of college students.

Time management disposition scale

This study was in compliance with the time management disposition scale (i.e., Time Management Disposition Inventory for Chinese adolescents) suggested by Huang and Zhang (2001) to propose the time management disposition scale which consisted of three subscales which were the sense of time value (10 questionnaire items), time supervision (24 questionnaire items), time efficacy (10 questionnaire items). Therefore, there was a total of 44 questionnaire items. In order to increase survey's expression effectiveness, four questionnaire items with the highest factor loadings within each subscale were chosen to be measurement questionnaire items. Accordingly, a total of 12 questions were selected and were then assessed using the Likert five-point scale (1= "totally inconsistent", 5= "totally consistent").

Positive emotions scale

This study selected emotion scale suggested by Fisher (2000) to measure positive emotion dimension. Likert five-point scale (1= not at all, 5= extremely) was employed to assess a total of 5 questionnaire items. The mentioned positive emotions included the feeling of liking someone, enjoyment, happiness, enthusiasm, pride, and optimism.

Well-being scale

The well-being scale in this study was based on the overall emotion and emotional indicators “Index of Well-Being” proposed by Campbell (1976). Five-point scale scores was employed to assess a total of 8 questions which were “whether fell at ease”, “feel sufficient”, “feel full of hope”, “self improvement”, “feel excited”, “feel satisfied”, “life meaning”, and “feeling very happy”.

4. Result and Discussion

4.1 Reliability and validity

This study utilized partial least squares (PLS) statistical model to test scale reliability and validity, hence Warp PLS 4.0 statistical software by Kock (2013) was employed. According to Hulland (1999), the tests for model’s scale reliability and validity could be divided into item reliability, convergent validity, discriminant validity and so on.

Item reliability

In order to measure item reliability, this study used a combination of composite reliability (CR) and Cronbach’s α coefficient. Based on Fornell and Larcker (1981) and Nunnally & Bernstein (1994), CR values and Cronbach’s α values should be equal to or greater than the threshold .70 to indicate good reliability. Table 1 displayed the achieved CR values and Cronbach’s α for determining reliability of each dimension in the model. Accordingly, CR values and Cronbach’s α of recreation sport participation, time management disposition, positive emotions, and well-being respectively were 1.00 and 1.00 (RSP), .89 and .87 (TMD), .92 and .89 (PE), and .92 and .90 (WB). Overall, the achieved CR values and Cronbach’s α of each variable were greater than the standardized value .70, indicating good reliability of the measurement model.

Table 1 Composite reliability (CR) and Cronbach’s alpha for measurement model

Latent variables	Composite reliability	Cronbach’s α
recreation sport participation	1.00	1.00
time management disposition	.89	.87
positive emotions	.92	.89
well-being	.92	.90

Convergent validity

Convergent validity is for understanding whether the factor loading value of latent variables to its measurement variables is sufficiently large. According to Hair, Black, Babin, and Anderson (2010), factor loadings must be greater than .50; vice versa, the item has to be deleted. Based on this premise, this study was through examining the factor loadings of latent variables to its measurement variables to test convergent validity of the proposed scales. As shown in Table 2, factor loadings for recreation sport participation (RSP) was 1.00 (there was only one question remaining after being calculated), for time management disposition (TMD) were between .53 to .75, positive emotions (PE) were between .77 to .88, well-being (WB) were between .65 to .83, which were all greater than the threshold .50 (Hair et al., 2010), implying good convergent validity for all scales.

Table 2 PLS Loadings and Cross-Loadings

Variables	RSP	TMD	PE	WB
RSP	1.00			
TMD1		.70		
TMD2		.66		
TMD3		.71		
TMD4		.68		
TMD5		.71		
TMD6		.71		
TMD7		.75		
TMD8		.69		
TMD9		.53		
TMD10		.57		
TMD11		.56		
TMD12		.55		
PE1			.81	
PE2			.86	
PE3			.88	
PE4			.86	
PE5			.77	
WB1				.75
WB2				.65
WB3				.77
WB4				.64
WB5				.83
WB6				.79
WB7				.81
WB8				.83

Note: RSP= recreation sport participation, TMD=time management disposition, PE=positive emotions, WB=well-being

Discriminant validity

This study was based on the discriminant validity test method of Chin (1998) to propose that

the square root of every average variance extracted (AVE) value belonging to each latent variable should be greater than any correlation among any pair of latent variables in the model. In addition, Venkatesh, Thong, and Xu (2012) recommend that AVE square root should be equal to or greater than the standardized value .70. As shown in Table 3, for all proposed variables in the model, the achieved AVE square root values were from .74 to 1.00 and were all greater than the threshold .70. Additionally, the AVE of each latent variable was greater than the coefficient values of other pairs of latent variables in the same column, which was compliant with the suggested testing standards, indicating good discriminant validity of the measurement model.

Table 3 Correlations between Latent Variables

	RSP	TMD	PE	WB
RSP	(1.00)	.44	.58	.58
TMD	.44	(.74)	.56	.63
PE	.58	.56	(.83)	.69
WB	.58	.63	.69	(.76)

Note: Square roots of average variance extracted (AVE) are shown on diagonal.

4.2 Control variable analysis

The t test analysis results of the impacts of college students' different genders on recreation sport participation ($t = 2.21, p < .05$), time management disposition ($t = 1.77, p > .05$), positive emotions ($t = 4.22, p < .05$), and well-being ($t = 4.77, p < .05$) showed that male students' recreation sport participation, positive emotions, and well-being were higher than female students.

Additionally, one-way ANOVA analysis of the effects of college students' different grades on recreation sport participation ($F = 2.04, p > .05$), time management disposition ($F = 2.56, p > .05$), positive emotions ($F = 1.50, p > .05$), and well-being ($F = 2.26, p > .05$) did not reach significant levels, implying that the influences of students' different grades on recreation sport participation, time management disposition, positive emotions, and well-being did not have significant differences.

Finally, concerning the impacts of students' choices of whether to participate in recreation sports clubs, t test analysis results of recreation sport participation ($t = 2.16, p < .05$), time management disposition ($t = 2.83, p < .05$), positive emotions ($t = 2.82, p < .05$), and well-being ($t = 2.48, p < .05$) denoted that recreation sport participation, time management disposition, positive emotions, and happiness of students who chose to join recreation sports clubs were higher than those who did not join.

4.3 The impacts of college students' recreation sport participation, time management disposition, and positive emotions

This study utilized partial least squares (PLS) statistical model to verify the impacts of college students' recreation sport participation, time management disposition, and positive emotions on well-being. Based on the idea proposed by Hulland (1999), the analysis included structural model analysis and explanatory power analysis, being respectively presented as follows:

Structural model analysis

After testing the measurement model for good reliability and validity, the structural model was tested. It was noted that when employing PLS analysis for examining the validation of the structural model, two following factors must be considered, including (1) standardized path coefficient and (2) R^2 , which was used to determine the explanatory power of the model (Chin, 1998; Fornell & Larcker, 1981; Hair et al, 2010). The results of path coefficients between the latent variables and R^2 values showed that the structural model fit well with the empirical data and standardized path coefficients reached significant levels. Noteworthy, higher R^2 values indicated better explanatory power.

Being further explained, path coefficients represented the intensity and direction of the relationships between the examined variables. Therefore, path coefficient test should reach the significant levels and their expected directions should be consistent with research hypotheses in order to establish the relationships between predictive variables and the criterion variables. In this study, Warp PLS 4.0 software was utilized for testing the structural model. The results of SEM path analysis were shown in Figure 2 and Table 4.

In Figure 2, the line indicated the value of the path coefficients, i.e., the standardized regression coefficients (β) of regression equations.

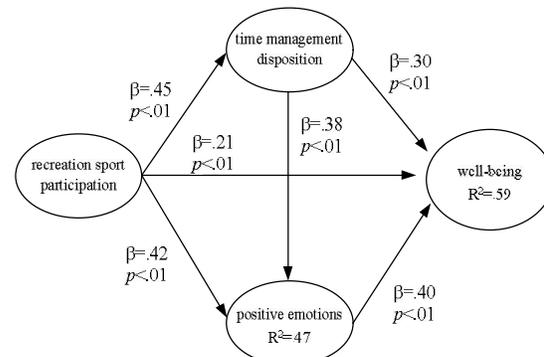


Fig. 2 SEM analysis results

Table 4 SEM test results with path coefficients

Research hypothesis: Variable relationships	Effect direction	β	P values	Result
H1 : RSP → TMD	Positive	.45 (β_1)	$P < .01$	Supported
H2 : RSP → PE	Positive	.42 (β_2)	$P < .01$	Supported
H3 : RSP → WB	Positive	.21 (β_3)	$P < .01$	Supported
H4 : TMD → PE	Positive	.38 (β_4)	$P < .01$	Supported
H5 : TMD → WB	Positive	.30 (β_5)	$P < .01$	Supported
H6 : PE → WB	Positive	.40 (β_6)	$P < .01$	Supported

Explanatory power (R^2) analysis

R^2 value represents the predictive ability of the research model, which is the predictive power capability of exogenous variables in explaining endogenous variables in the model, being presented through percentage of variance explanatory power. In other words, the higher R^2 value indicates its stronger predictive ability. As shown in Figure 2, college students' recreation sport participation and time management disposition variables could explain positive emotions variable at the value of $R^2 = .47$ (representing 47%), college students' recreation sport participation, time management disposition, and positive emotions variables could explain well-being variable at the value of $R^2 = .59$ (representing 59%).

4.4 Discussion

In recent years, Taiwan college students have encountered many challenges such as high tuition, expertise pressure, and high unemployment after graduation, low wage jobs as well as other psychological stress. Therefore, students' living well-being has become one of main concerns. The findings of this study have found that students' recreation sport participation exert positive influences on their time management disposition, positive emotions, and well-being. The results are consistent with previously related researches that people once getting engaged in regular exercises and attempting to reach good results must be well-prepared in free time management and planning. In the past, many people due to frequent heavy workload had no time and plenty of other excuses to engage in sports. However, it has been acknowledged that participants with proper time arrangements would obtain joyful leisure experience and smooth experience through involving sports process, which in turn produce higher levels of psychological self-confidence and sense of accomplishment, reduce anxiety and tension, promote life satisfaction, and improve well-being (Iwasaki, 2003; Huang, 2004; Wang, Chen, & Li, 2011).

Noteworthy, American College of Sports Medicine (ACSM) and American Medical Association (AMA) point out that physical activities and health benefits have a positive correlation relationship, hence suggesting that increasing the amount of physical activities is one of the most direct and most effective methods to change individuals' lifestyle. It is also proposed that healthcare employees should advocate sports into individuals' lifestyle practices since this is a very important endeavor (Jonas & Phillips, 2009). In other words, establishing students' habits of regularly getting engaged in sports activities is way to effectively enhance positive psychological benefits. It is also noted that Huang, Lui, and Hung (2002) through exploring the impact of psychosocial variables on college students' exercise habit establishment affirm that health belief, self-efficacy, and social support are important predictive factors toward college students' exercise habit establishment. Being fully understood, this result shows that once college students have higher belief that taking exercise behaviors help with the prevention of disease, they can reach higher confidence in taking up doing sport habits. For better effectiveness, the more other important people (e.g., friends, teachers) support students' sport participation, the more students are stimulated to establish regular exercise habits.

The analysis results of this study affirm the positive impacts of college students' time management disposition on positive emotions and well-being, which in turn support previous studies (Zhang et al, 2001; Chen, Zhang, Zou, Yang, & Huang, 2005; Qin & Zhang, 2002). In addition, Fan, Sun, and Liu (2012) point out that individuals' time management disposition also acts as their attitude, planning and use cognition toward time, hence individuals' acknowledgement toward time values and behavioral disposition is perceived to belong to a kind of multi-dimensional, multi-layered personality traits. Recently, Chang, Chen, and Chi (2012) strongly propose that people with good time management can achieve high resilience in academic performance and life stress; additionally, proper time management and recreation sport planning can effectively enhance life quality. In other words, people with good time management can achieve higher life quality. In line with this, Fu (2010) through scoring college students' time management disposition realize that time management disposition can help people obtain outstanding performance, strong self-esteem, and life well-being.

The findings also indicate that students' positive emotions positively affects their well-being, which is consistent with the extant literature that positive emotion is an indicator toward subject well-being

(Anderson & Anderson, 2003; Fredrickson & Cohn, 2008). Concerning organizational contexts, previous studies have found that staff with high positive emotion will be more creative and adhesive for work than those with relatively lower positive emotions (Isen & Baron, 1991). The results of this study have sufficiently explained this idea through proving that once individuals are easier to feel positive emotions (enthusiasm, positive and happy mood, etc.), they are more willing to make work done and to cooperate with colleagues to solve problems (Lin & Lin, 2011). Therefore, this lifestyle can effectively improve psychological well-being (McNulty & Fincham, 2012). Accordingly, this research is in line with the idea of Lee (2012) to recommend that college students should get engaged more into school sports club activities, establish new interpersonal relationships in order to be able to better expand personal life, provide new social roles, obtain adequate social support, generate more positive emotions, and increase their well-being.

Finally, the control variable analysis results showed that male college students' recreation sport participation, positive emotions and well-being were higher than female students, which was consistent with previous study that male students' involvement in sports was more regular and their exercise intensity was higher than those of female students (Chuang & Jene, 2004). Hence, similarly to Chung (2007), this study suggests that in order to enable college students to have positive sport participation behaviors, students should be encouraged to make more efforts to get gym class experience since once they have positive experience of physical education, their learning satisfaction can be improved and sport participation behavior intentions would be better.

Last but not least, Chen and Shia (2003) point out male students often go to park or community-based sports venues for doing sports while female student prefer home-based sports. Therefore, to enhance the opportunities for female students to engage in sports, home-based sports' teaching methods and training principles should be promoted since this endeavor can help female students develop regular exercise habits. In addition, the results have proven that students who participate in sports clubs exert higher recreation sport participation, time management disposition, positive emotions and well-being than those who do not. Noteworthy, in recent years, the survey with Taiwan college health-related students has alarmingly showed that most college students do not have regular exercise habits in their spare time. The percentage of students taking regular exercise habit is 20.24%, which in turn makes the situation of Taiwanese students' physical fitness participation is not as ideal as neighboring countries

such as Japan and Korean (Ministry of Education, Sports Division, 2003; Huang, Tai, & Chen, 2006). As the percentage of students who participate in sports clubs in Taiwan was 24.4% and the fact that there is a decreasing trend of sport participation when students' grade increases (Chang, Chen, Yang, Wang, Lin, & Lee, 2010), how to stimulate college students to participate in sports clubs has become a noteworthy topic for future research.

5. Conclusion and Suggestion

5.1 Conclusion

Generally, the findings confirm the impacts of college students' recreation sport participation, time management disposition, and positive emotions on well-being. The analysis results of six hypotheses have fully supported the theoretical point of views of previous positive psychology studies that students' well-being can be effectively increased through enhancing their time management disposition and positive emotions. Additionally, college students' engagement in the establishment of recreation sport principles is also indicated to beneficially assist their positive psychological development.

5.2 Suggestion

Recommendations for schools

1. Schools and teachers should keep on strengthening and supporting students to participate in recreation sports club activities and through PE courses to let students understand sports behaviors since these endeavors are helpful not only to the prevention and reduction of diseases but also to the development of positive emotions as well as enhance students' sports health beliefs. In addition, participation in recreation sports clubs can beneficially promote students' involvement in sports at least three times a week.

2. Colleges are recommended to stimulate and encourage students to carry on effective time management since good time management tendencies can help students apply time management skills correctly, improve work efficiency, and especially can bring their more leisure time for exercise.

3. Teachers are suggested to teach students to be more optimistic since optimism would beneficially bring about more positive expectations and aspirations in future and right assessments toward encountered issues or problems, which in turn help students find out the appropriate strategies, produce positive experience, maintain a positive mood, and obtain a better life and well-being.

4. PE teachers are also recommended to pay more attention to genders' sports preferences differences. For instance, based on the fact that female students tend to engaged in home-based sports, teachers should guide more home-based

exercises as well as training principles since this endeavor would beneficially help students develop regular exercise habits.

5. Finally, PE teachers should increasingly encourage female students to do more exercises. In addition to teaching sports skills, PE teachers are recommended to put more efforts into strengthening students' psychological construction. For instance, since exercise self-efficacy of female students are generally lower than male students, teachers through the use of peer encouragement and peer learning can help female students create closer relationships to one another, which in turn advantageously increases their good sports experiences and build up their sports self-confidence.

Future research recommendations

1. Future studies are encouraged to confirm the stability of the achieved results concerning the impacts of college students' genders and their choices of whether to participate in sports clubs on their recreation sports participation as well as the important roles of time management disposition and positive emotions on well-being.

2. It is also suggested that future researches should conduct more analyses on the impacts of recreation sports participation on positive emotion-related variables (e.g., hope, happiness, resiliency, virtues, etc.) in order to sufficiently understand the influences of recreation sports participation on positive psychological development.

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