

Influence of Athletes' Self-Management Strategies on Athlete Satisfaction and Stress Levels

Seonghyeok Hong¹

Kyunghee University, Republic of Korea, Master

A-Lam Jung^{2*}

Kyunghee University, Republic of Korea, Adjunct Professor

This study was conducted for the purpose of providing data and methodology to effectively manage college sports teams by analyzing the relationship between athlete's self-management strategies, athlete satisfaction and stress level. Data were obtained from college athletes across thirteen sports in the Seoul metro-area through convenience sampling methods of which 252 were considered to be valid samples. Data analysis was processed using SPSS 21.0 version. We conducted frequency analysis to understand the subjects' characteristics, exploratory factor analysis to verify validity and reliability of the survey tool, correlation analysis to identify relationship between variables and regression analysis to investigate influence. The data has shown that self-management strategies of athletes have a significant impact on the athlete's satisfaction and stress level. It also showed that athlete satisfaction partially affected the stress level of the athletes.

Key words: Self-Management Strategy, Athletes' Athlete Satisfaction, Stress

* Corresponding author.

E-mail address: alami@khu.ac.kr

Introduction

Sports in Korea have seen rapid increase in terms of its popularity and infrastructure over the years and such development can be attributed to physical education classes in all levels of schools as well as college athletes who have played key roles as the pinnacle of the student athletics, or ‘elite athletics’. (Seo & Jung, 2015). Upon advancing to college level, these elite athletes suddenly face the issues of dealing with sports as well as academics, thus creating conflicting interest in personal development and athletic development (Lim & Yang, 2015), making self-management of mental and physical health ever more important. Self-management could be considered the most important ability that athletes need to possess as it is managing and controlling oneself both mentally and physically, plus other aspects such as training and even personal privacy, in order to succeed and achieve goals set out. (Song, 2013). Self-management is also influencing oneself to change behaviors, and such changed behaviors impacting surrounding conditions and environments (Lee & Kim, 2009; Jones, Nelson & Kazdin, 1977; Miller, 1998). Many successful athletes have been known to consider near-perfect self-management strategies as the most important keys to their successes (Choi, 2010). Likewise, self-management to athletes is self-controlling and being determined to oneself in various aspects and thus directly related to successful athletic performance. Athletes’ confidence levels increase and bring positive influence when self-management strategy is well-executed, but when it is not, they bring anxiety and negative influence on athletes (Heo & Yoo, 2001).

Athlete satisfaction could be defined as the perceived level of fulfilled desires through athletic activities and careers for individual athletes (Chun, 2011). Athlete satisfaction is not limited to individual performances but rather satisfaction from all aspects of athletic circumstances, including level of fulfilled desires from coaches, training method, teammates, etc. That is, if assessment of coaches’ actions is negative, then the athlete satisfaction level is shown to be low. (Go & Kim, 2003). When achieving success as a team, each member of the team will feel satisfaction from the result and such satisfaction leads to loyalty and cohesion as a team and ultimately effective team chemistry. (Lee, 2010).

Meanwhile, most college athletes endure grueling training regimen and training camp environment. These athletes are always exposed to emotional stress from high-intensity environment, pressure to improve skill level and repetitive life pattern. (Ahn, 2008). Athletes who experience excessive stress not only lose interest in sports but also fall into negative thoughts which will result in negative impact on mental-physical aspects such as abandonment, insomnia, eating disorder, slumps, injuries, decrease in self-confidence (Oh & Lee, 2005), and ultimately have negative impact on athletic performance. Therefore, self-management strategies, athlete satisfaction and stress levels have utmost importance on athletic performance. There have been many previous studies which have dealt with self-management strategies (Kim & Kim, 2014; Kim & Nam, 2020; Shin & Yoon, 2018; etc.), athlete

satisfaction(Ji, 2017; Jin & Kang, 2018; Jun & Kim, 2019) and stress levels (You & Park, 2019; Sim, 2013; Lee, 2015) and their impacts on athletic performances and/or motivational factors in athletic activities. However, although the importance of each variable is well noted, lack of studies that have dealt with correlation between these factors are noteworthy. This study will provide the academic basis on how athletes' self-management strategies will lead to athlete satisfaction, and how the athlete satisfaction will then impact stress levels and furthermore individual athlete development and effective management of college athletics teams and programs.

Method

Sampling

Data were obtained from college athletes across thirteen sports in the Seoul metro-area through convenience sampling methods. Out of 270 returned questionnaires, 252 were deemed to be valid samples and thus utilized for this study. Among the 252 subjects, 190 male (75.4%) and 62 female (24.6%) athletes were surveyed. 113 athletes participate in individual sports (44.8%), 139 in team sports (55.2%) and 37 athletes have had athletic careers of less than eight years (14.7%), 122 from eight to nine years (48.4%), 93 over 9 years of experience (36.9%)

Survey Tool

Questionnaires were used to identify the relationship between the variables set out in this study. Survey questions for self-management strategies were developed by taking the questionnaire utilized in Heo's study (2001) and editing to fit the purpose of this study and total of 16 questions were derived (4 questions each for categories of Mental, Training, Interpersonal, Physical). Survey tool utilized in Chelladurai (1985), Widmeyer & Williams (1991) studies were developed and edited to a total of 9 questions (3 questions each for categories of Task Execution, Social Interaction, Coachability). Survey tool utilized in Oh & Lee's study was developed and edited to a total of 20 questions (5 questions each for categories dissatisfaction for coaching, discontent for performance, career path, limitation of personal time).

Validity and Reliability of the Survey Tool

Questionnaire used for this study was based on various preceding research and the validity verification was initially done by two Ph. D.'s in the sports science field, two professors with expertise in athlete guidance field and the researcher on whether the questionnaire properly measures in

accordance with intended purpose of the questions. Upon verifying content validity, exploratory factor analysis was conducted to verify construct validity and the factors were extracted via principal component analysis. Factor analysis with Varimax rotation, one of orthogonal rotational methods, was conducted and factors with more than standard eigen value of 1.0, value of factor loading more than 0.5 were included as extracted factors. Factor analysis of self-management strategy showed 61.960% cumulative variance, of athlete satisfaction showed 71.027% cumulative variance and of stress levels showed 66.239% cumulative variance, indicating the questionnaire was properly structured.

Table 1. *Exploratory Factor Analysis and Validity Verification for Self-Management Strategies*

Questions	Interpersonal Management	Physical Management	Mental Management	Training Management	Cronbach's α
Interpersonal Management	.806	.117	.186	.023	.852
	.804	.038	.230	.070	
	.738	.202	.206	.047	
	.717	.037	.146	.201	
	.656	.185	.236	.169	
Physical Management	.057	.857	.053	.099	.776
	.082	.709	.098	.137	
	.055	.693	-.025	.164	
	.080	.670	.094	.167	
	.268	.557	.130	.140	
Mental Management	.206	.071	.868	.025	.866
	.235	.058	.805	.198	
	.218	.209	.767	.133	
	.233	.000	.766	.060	
Training Management	.006	.197	.114	.823	.741
	.045	.169	.143	.818	
	.284	.170	.105	.561	
	.300	.393	-.005	.521	
Eigen value	3.248	2.869	2.865	2.171	
Dispersion(%)	18.044	15.940	15.916	12.061	
Cumulative(%)	18.044	33.984	49.900	61.960	

Table 2. *Exploratory Factor Analysis and Validity Verification for Athlete Satisfaction*

Questions	Coachability	Task Execution	Social Interaction	Cronbach's α
Coachability	.834	.202	.173	.818
	.815	.232	.216	
	.795	.114	.191	
Task Execution	.245	.849	.099	.791
	.218	.848	.248	
	.089	.652	.353	
Social Interaction	.122	.151	.828	.747
	.266	.193	.738	
	.252	.338	.672	
Eigen value	2.256	2.146	1.991	
Dispersion(%)	25.069	23.841	22.117	
Cumulative(%)	25.069	48.910	71.027	

Table 3. *Exploratory Factor Analysis and Validity Verification for Stress Levles*

Questions	Dissatisfaction for Coaching	Discontent for Performance	Career Path	Limitation of Personal Time	Cronbach's α
Dissatisfaction for Coaching	.868	.110	-.022	.152	.909
	.860	.247	.041	.113	
	.778	.329	.027	.062	
	.777	.241	.097	.009	
	.757	.154	.146	.159	
	.722	.000	.025	.224	
	.624	.163	.303	.187	
Discontent for Performance	.224	.836	.106	.110	.899
	.136	.829	.142	.138	
	.152	.824	.065	.142	
	.278	.750	.174	.150	
	.184	.739	.202	.194	
	.109	.631	.086	.124	
	.139	.143	.829	.011	

Questions	Dissatisfaction for Coaching	Discontent for Performance	Career Path	Limitation of Personal Time	Cronbach's α
Career Path	.034	.200	.819	.157	.876
	.095	.222	.819	.090	
	.130	.085	.812	-.014	
	.072	.060	.677	.191	
	-.026	.015	.629	.219	
Limitation of Personal Time	.203	.183	.073	.795	.860
	.212	.189	.093	.782	
	.251	.231	.170	.738	
	-.005	.005	.219	.735	
	.141	.230	.092	.715	
Eigen value	4.624	4.157	3.881	3.236	
Dispersion(%)	19.266	17.322	16.170	13.481	
Cumulative(%)	19.266	36.587	52.758	66.239	

Data Analysis

IBM SPSS Statistics(ver. 25.0) was used to analyze data in this study. Frequency analysis to understand the subjects' characteristics, exploratory factor analysis to verify validity and reliability of the survey tool, correlation analysis to identify relationship between variables and regression analysis to investigate influence were conducted

Results

Correlation Analysis

Correlation analysis was conducted to test the normality of collected data. Correlation between variable have showed no multicollinearity problems as all figures resulted to be below .80, the multicollinearity standard set by the Kim's study (2007). The result of the analysis is shown on Table 4 below.

Table 4. *Correlation Analysis*

	1	2	3	4	5	6	7	8	9	10	11
Mental Management	1										
Training Management	.312**	1									
Interpersonal Management	.516**	.369**	1								
Physical Management	.247**	.511**	.329**	1							
Task Execution	.498**	.322**	.404**	.321**	1						
Social Interaction	.370**	.321**	.611**	.404**	.559**	1					
Coachability	.261**	.267**	.357**	.351**	.470**	.505**	1				
Dissatisfaction for Coaching	-.013	.075	.150**	.005	-.008	.030	-.021	1			
Discontent for Performance	.050	.080	.172**	-.085	.093	.121*	.001	.466**	1		
Career Path	-.183**	.017	-.054	.041	-.139*	.007	-.054	.255**	.340**	1	
Limitation of Personal Time	-.028	-.044	.012	-.048	-.191**	-.056	-.185**	.401**	.421**	.335**	1

Analysis on Impact Athletes' Self-Management Strategies have on Athlete Satisfaction

Athletes' self-management strategies, as explained on Table 5, is shown 30% variants for task execution and mental management ($\beta=.366$), physical management ($\beta=.143$), interpersonal management ($\beta=.137$), in the respective order, are shown to have impact on athlete satisfaction levels. It is indicated with 41.2% variants for social interaction and interpersonal management ($\beta=.510$), physical management ($\beta=.221$), in the respective order, are shown to have impact and lastly, 18.1% variants for coachability and physical management ($\beta=.238$), interpersonal management ($\beta=.227$), in the respective order, are shown to have relative impact.

Table 5. *Impact Athletes' Self-Management Strategies have on Athlete Satisfaction*

Factor		B	SE	β	t	
Task Execution	(Constant)	.787	.304		2.588	F = 27.860*** R2 = .311 Adjusted R2= .300
	Mental Management	.379	.065	.366	5.865***	
	Training Management	.091	.069	.085	1.328	
	Interpersonal Management	.164	.077	.137	2.125*	
	Physical Management	.143	.063	.143	2.283*	
Social Interaction	(Constant)	.493	.272		1.809	F = 44.927*** R2 = .421 Adjusted R2= .412
	Mental Management	.052	.058	.051	.892	
	Training Management	.004	.061	.004	.063	
	Interpersonal Management	.598	.069	.510	8.643***	
	Physical Management	.217	.056	.221	3.867***	
Coachability	(Constant)	1.320	.338		3.906	F =14.886*** R2 = .194 Adjusted R2= .181
	Mental Management	.078	.072	.073	1.086	
	Training Management	.042	.076	.039	.558	
	Interpersonal Management	.280	.086	.227	3.259***	
	Physical Management	.246	.070	.238	3.530***	

p<.01, *p<.001

Table 6. Analysis on Impact Athletes' Self-Management Strategies have on Stress Levels

Factor		B	SE	β	t	
Dissatisfaction for Coaching	(Constant)	3.055	.403		7.571***	F = 2.467* R2 = .038 Adjusted R2= .023
	Mental Management	-.147	.086	-.127	-1.721	
	Training Management	.088	.091	.073	.969	
	Interpersonal Management	.285	.102	.211	2.778***	
	Physical Management	-.080	.083	-.071	-.963	
Discontent for Performance	(Constant)	3.359	.363		9.250	F = 4.156** R2 = .063 Adjusted R2= .048
	Mental Management	-.054	.077	-.051	-.700	
	Training Management	.131	.082	.119	1.603	
	Interpersonal Management	.273	.092	.223	2.965**	
	Physical Management	-.212	.075	-.207	-2.841**	
Career Path	(Constant)	3.806	.435		8.759	F = 2.820* R2 = .044 Adjusted R2= .028
	Mental Management	-.284	.092	-.226	-3.079**	
	Training Management	.060	.098	.046	.610	
	Interpersonal Management	.035	.110	.024	.319	
	Physical Management	.079	.089	.065	.887	
Limitation of Personal Time	(Constant)	3.760	.451		8.341	F = .319 R2 = .005 Adjusted R2= -.011
	Mental Management	-.047	.096	-.037	-.494	
	Training Management	-.043	.102	-.033	-.425	
	Interpersonal Management	.084	.114	.057	.736	
	Physical Management	-.051	.093	-.041	-.545	

p<.01, *p<.001

Analysis on Impact Athletes' Self-Management Strategies have on Stress Levels

Athletes' self-management strategies, as explained on Table 6, is shown 2.3% variants for stress levels and interpersonal management ($\beta=.211$) is found to have relative impact. It is indicated with 4.8% variants for performance discontent and interpersonal management ($\beta=.223$), physical management ($\beta=-.207$) in the respective order, are shown to have impact and mental management ($\beta=-.226$) is found to have relative impact. Lastly, limitation of personal time is found to have no impact.

Analysis on Impact Athlete Satisfaction have on Stress Levels

Athlete satisfaction, as explained on Table 7, is shown 3.0% variants for stress levels and task execution ($\beta=-.201$) is found to have relative impact. It is indicated with 4.7% variants for limitation of personal time and coachability ($\beta=-.163$), task execution ($\beta=-.188$) are found to have relative impact.

Table 7. *Impact Athlete Satisfaction have on Stress Levels*

Factor		B	SE	β	t	
Dissatisfaction for Coaching	(Constant)	3.663	.337		10.866	F = .259 R2 = .003 Adjusted R2= -.009
	Task Execution	-.028	.089	-.025	-.312	
	Social Interaction	.076	.093	.066	.812	
	Coachability	-.047	.083	-.043	-.566	
Discontent for Performance	(Constant)	3.546	.304		11.647	F = 1.854 R2 = .022 Adjusted R2= .010
	Task Execution	.065	.080	.063	.807	
	Social Interaction	.140	.084	.134	1.669	
	Coachability	-.096	.075	-.096	-1.273	
Career Path	(Constant)	3.742	.359		10.421	F = 2.590 R2 = .030 Adjusted R2= .019
	Task Execution	-.244	.095	-.201	-2.572*	
	Social Interaction	.165	.099	.133	1.661	
	Coachability	-.032	.089	-.027	-.356	
Limitation of Personal Time	(Constant)	4.548	.360		12.640	F = 5.151** R2 = .059 Adjusted R2= .047
	Task Execution	-.232	.095	-.188	-2.444*	
	Social Interaction	.166	.099	.131	1.667	
	Coachability	-.195	.089	-.163	-2.198*	

p<.01, *p<.001

Discussion

The purpose of this study was to investigate into the relationship between Athletes' self-management strategies, athlete satisfaction and stress levels. Data were obtained from college athletes across thirteen sports in the Seoul metro-area through convenience sampling methods. Out of 270 returned questionnaires, 252 were deemed to be valid samples and thus utilized for this study.

Data were processed using SPSS Version 25.0 Program and frequency analysis, exploratory factor analysis, correlation analysis and regression analysis were conducted to derive at the results. Discussion from this study is as below.

Self-management strategies were found to affect Task Execution and Coachability among athletes satisfaction, and Lee's study (2005) reported that physical management, key factor in self-management, affect athlete satisfaction and Se's study (2007) reported that physical management as well as mental management have impact on athlete satisfaction, partially supporting the claim made in this study.

These findings lead to believe the fulfillment of 4 aspects of self-management - Mental, Training, Interpersonal, Physical - will be a big factor on determining performance level during competitive settings. College athletes having positive athlete satisfaction will have multitude of factors, of which self-management will play a big role. Therefore, athletes with high level of self-management will naturally have internal and external motivational factors to plan and execute with own desires, leading to high athlete satisfaction levels. Structured training regimen that will develop self-management of college athletes will have the utmost importance which will lead to increase in athlete satisfaction levels and performance.

Athletes' self-management has been found to have meaningful impact on dissatisfaction for coaching, discontent for performance, career path and limitation of personal time, which are sub-factors for athletic stress.

Athletes with high level of self-management will have added stress from performance levels and anxiety from career path choices. Athletes trying to improve performance levels with increasing intensity and frequency of training with competition being imminent could be one of the factors (Shin, 2009), and college athletes put most of their efforts on athletic performance rather than academics and tend to be interrupted have dissatisfaction for coaching and career paths. Decreasing athletes' levels of stress is a key to success and efforts to constantly communicate and try to remove dissatisfaction should be made at all times.

Athlete satisfaction level has been found to have meaningful effect on career path and limitation of personal time, which are sub-factors for athletic stress while having no meaningful impact on dissatisfaction for coaching and discontent for performance. Park's study (2007) showed that the shorter the athlete's career, the bigger impact limitation of personal time and dissatisfaction for coaching have

on his/her stress level. As the career gets longer, performance and anxiety over career path start having a greater impact on athletes' stress levels. Meanwhile, it was found that those athletes with shorter careers have higher levels of stress stemming from anxiety over career path during this study, indicating different results from Park's study. Choi's study (2011) which researched about relationship of personality type, exercise stress and athletic burnout among high school athletes reported that female athletes have higher levels of stress levels, while it was found during this study that male athletes have higher impact on stress levels from dissatisfaction for coaching, anxiety over career path, lack of personal time and female athletes have higher impact from performance levels. Choi's study (2011) reported that the factor of lack of personal time have bigger impact on older athletes, while it was found that younger athletes were affected more by the factor of lack of personal time on this study. Thus, following research seems needed to try to examine the background on which different results have been found between the two studies.

In conclusion, athletes need to formulate differentiated self-management strategies, and through which lead to athletic satisfaction and decreased stress levels which will ultimately have positive impact on training effectiveness.

Future Direction

This study approached with quantitative research methodology rather than qualitative methods by which try to explain more in-depth correlation between each variable. Therefore, following studies should incorporate qualitative methodology and develop more comprehensive survey tools while referencing preceding studies on the subject.

References

- Go, R. J. & Kim, Y. M. (2003). relationship between the types of coaches' leadership and satisfaction of table tennis players. *The Korean Journal of Physical Education*, 42(4), 157-172.
- Kim, G. S. (2007). *Structural Equation Model Analysis*, Hannarae.
- Kim, Bum-Jun, Kim, Hyeon-Gwon (2014). The Comparative Study of Achievement Goal Orientation, Self-Management and Motor Performance Ability in Elite Amateur Boxer. *International Journal of Coaching Science*, 16(3),
- Kim, D. E, Nam, K. W. (2020). The Relationship between Instructing Characteristics and Athletic Performance of Gymnasts: Focus on Mediating Effect of Self-Management. *The Korea Journal of Sport*, 18(2)

- Park, B. G. (2007). The Relationship between Participation Traits and Exercise Stress in University Athletes. *International Journal of Coaching Science*, 9(1), 103-112.
- Chun, G. Y. (2011). The influence of member satisfaction or exercise commitment by Judo players' self-management on instruction effectiveness. *The Journal of Korean Alliance of Martial Arts*, 13(1), 59-76.
- Se, D. M. (2007). The Relationship among Self-Administration and Exercise Absorption, Athlete-Satisfaction of Bowler. Korea National Sport University.
- Seo, Y. H, Jung, K. I. (2015). Verification of a Relational Model of Exercise Stress, Self-management, and Giving-up-in-the-middle of University Student Athletes. *The Korea Society of Sports Science*. 24(3), 503-517.
- Song, sung kyu (2013). The influence of self-management on achievement goal orientations, flow and performance of aerobic gymnastic players. Hanyang University.
- Sim, Mi-hyun (2013). Influence of sport stress on Exercise Adherence and Dropout Intention of Aerobic Gymnasts, INHA University, *Research of sports science*, 25.
- Shin, S. D. (2009). Influence of sports commitment, stress and burnout on injury psychology following the guidance type of judo coaches. Kyonggi University.
- Shin, Jun-Soo, Yoon, Hyung-Ki (2018). The Relationships between Self-Management Behavior, Self-Efficacy, and Performance of College Golf Athletes, *The Korea Society of Sports Science*, 27(3).
- Ahn, M. Y. (2008). The Relationship Between Social Support and Exercise Stress Among High School Football Players. Dongguk University.
- Oh, Y. K, Lee, K. H. (2005). The development of stress inventory for high school table tennis player. *Korea Journal of Sport Psychology*, 16(3), 19-34.
- You, Ha-neul, Park, Dong-Cheol (2019). The effect of middle & high school kumdo players' exercise stress on exercise adherence and dropout intention, *The Korean Journal of Kumdo*, 30(1), 80-95.
- Lee, K. J. (2005). A study on Effects of Jockeys' Self Control on Their Immersion in Exercise and Satisfaction with Their Job. Korea National Sport University *Sport Science*,
- Dong-june Lee (2015). The Study on Exercise Stress and Stress Release of Elite University Shooting Athletes, *Korea National Sport University Sport Science*, 32(2),
- Lee, J. H. (2010). The effects of baseball coach's transformational leadership, transactional leadership on athletes satisfaction, *KyungSung University*, 99-106.
- Lim, J. S, Yang, C. H. (2015). Relationships of University Taekwondo Athletes' Sport Motivation with their Exercise Commitment and Exercise Performance Satisfaction. *The Korea Journal of Sport*, 13(2), 17-28

- Lee, J. T, Kim, J. W. (2009). The Relationship Between the Psychological Skills and Self Management Strategies Among Track and Field Reserve Athletes in Middle and High School. *Koran Journal Sport Science*, 20(4), 877-884.
- Jun, C. S, Kim, S. W. (2019). The Effects of Sponsorship on The Badminton Player's Life Satisfaction and Team Satisfaction, *The Korea Journal of Sport*, 17(3), 1079-1089.
- Ji, M. J. (2017). A Study on the Relationship Among Self Management, Career Satisfaction and the Career Continuance of College Athletes. *The Korea Journal of Sport*, 15(1), 611-621.
- Jin, In-Ha, Kang, Jin-Hyung(2018). The accomplishment of the goal of a Business Teams Kumdo players training and player satisfaction and according to the game's relationship, *The Korean Journal of Kumdo*, 29(1), 37-54.
- Choi, I. T. (2010). The effect of self management on sport coping and exercise burnout of middle and high school tennis players. Daegu University.
- Choi, J. K. (2011). Relationship of Personality Type, Exercise Stress and Athletic Burnout among High School Athletes. Yeungnam University.
- Heo, J. H, Kim, B. J, Yoo, J. (2001). Korean Athletes' Self - management Strategies in Practice and Competition. *The Korean Journal of Physical Education*, 40(1), 187-198.
- Chelladurai (1985). Discrepancy between preferences and perception of leadership behavior and satisfaction of athletes in varying sports. *Journal of sport psychology*, 6, 27-41
- John H. Harvey, Eric D. Miller (1998). Toward a Psychology of Loss, 9(6), 429-434.
- Jones, R. T., Nelson, R. E., & Kazdin, A. E. (1977). The role of external variables in self-reinforcement A review. *Behavior modification*, 1(2), 147-178.
- Widmeyer, W, N. & Willams, J. M. (1991). Predicting cohesion in coaching team. *Small Group Research*, In J. Williams (Ed.), *Applied sport psychology: personal growth to peak performance* (pp. 122-136). Mountain View, CA: Mayfield.

Received: February, 24

Reviewed: March, 29

Accepted: April, 20