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Does High-Quality Leadership Ensure Physical Well-Being of Athletes in China? Resolving Mystery of Team Identification and Burnout

Tianyi Sun[1]

Abstract
The main purpose of this research study is to examine the influence of high-quality leadership on promoting the physical wellbeing of Chinese athletes under the role of team identification and burnout. In order to fulfill that aim, high-quality athlete leadership based independent variable is categorized into two sub categories i.e. 1) athlete's own perceived leadership quality and 2) leadership quality of athlete's leader. In methodological terms, the study draws on online survey-based data (n=384) from athletes, coaches, experts and decision-makers in China wherein the majority were adult male athletes with two to five years' experience within the sports industry. After this, the correlation, hypothesis testing, and mediating and moderating effects based statistical outcomes are used to justify/ nullify the hypothesis. According to its statistical outcome, there is a significant positive relationship existing between athlete's own perceived leadership quality and physical well-being, and between leadership quality of athlete leaders and physical well-being. Moreover, team identification also plays a significant mediating role within the relationship of athlete's own perceived leadership quality and physical well-being, and between leadership quality of athlete's leaders and physical well-being. However, its fifth hypothesis becomes nullified, concluding that there is no significant moderating role of burnout between team identification and physical well-being. As far as its implications are concerned, it becomes clear that its authentic data can be utilized by Chinese sports authorities, their athletes, coaches, decision-makers and policy-makers in upcoming sports projects. In addition to them, related field scholars can also re-use its reliable data in their literature review and outcome interpretation. Nevertheless, the study carries some limitations i.e. lack of qualitative or mixed method of research design and deficiency of comparative analysis, which might impact the acceptability factor of this study; thiscan be potentiallyovercome by upcoming researchers in their work.
Keywords: High-Quality Athlete Leadership, Team Identification, Burnout, Physical Wellbeing, Chinese Athlete

Introduction

Leadership is an art of motivating a group of individuals to actively participate towards achieving a common goal. High quality based effective leadership plays a major role in capturing the essentials of being able to be prepared and inspire others (Amah, 2017; Andersen, Bjørnholt, Bro, & Holm-Petersen, 2018). In-group and out-group based high-quality leadership carries some major characteristics that distinguish it from the ordinary management and supervision for instance:1) they communicate their followers' ability and willingness to be a part of their in-group activities, 2) be fair and watch any bias, 3) expand the in-group, 4) know and actively work on three phases of leadership making i.e. stranger, acquaintance and partnership, and 4) significantly develop a long-term relationship with followers (Sfantou et al., 2017; Ugaddan & Park, 2017). In games, such high-quality leadership also ensures the well-being of athletes along with giving them proper training towards teamwork, communication, organization, and self-discipline among players (Peterson, 2019). Katrien Fransen with others justified that the highest-quality athlete leadership along with its four major roles of the task, social, motivational and external leaders directly enhance the overall effectiveness of team performance. Athletes in a team strongly share a sense of team's purpose, and are more confident in their team's abilities and highly committed to realize team goals (Fransen et al., 2017). Teams with higher task-involving and lower ego-involving climate excel in all the measures of their performance. In the majority of places, professional athletes are considered as high-quality leaders because of their determination, appreciating followership, teamwork, ability to handle pressure, and cognitive complexity (Masen, 2020).

Such athlete leadership also signifies the physical well-being of players by selecting such lifestyle behavior that ensures their health, avoids preventable conditions and disease, and promotes living in a balanced state of mind, body and spirit (Loughead, 2017; Pierce, Blanton, & Gould, 2018). In most games, burnout situations of players occur that cause a state of mental, emotional, and mostly physical exhaustion is brought on by repeated or prolonged stress (Fransen, Haslam, et al., 2020). In this situation, high-quality athlete leadership plays a major role in minimizing the burnout situation of team players along by significantly developing the team identification concept among them i.e. phenomenon whereby an individual team member feels a positive identity and attitude towards their team (Duguay, Loughead, & Cook, 2019; Fransen et al., 2017). In China, there is a great influence of sports activities on individuals' lives like the perception of widespread sports and mass sports considered as the most important component for the development of competitive sports in China. In 2018, a survey by Cint evaluates the distribution of sports regularly engaged in China in 2017 and 2018, as shown in the Table 1 below.

[1] School of Education Science, Xinyang Normal University, Xinyang, 464000 China Email: yianyi_sun@163.com

Table 1
Distribution of sports regularly participated in China 2017-2018

Sports	2017	2018
Hiking	5.49%	6.98%
Football/ Soccer	6.12%	7.67%
Cycling	7.4%	6.72%
Swimming	5.73%	7.19%
Running/ Jogging	5.58%	6.95%
Table Tennis	3.84%	4.44%
Basketball	4.12%	5.22%
Boxing	3.73%	1.89%
Hunting	1.57%	1.96%
Martial Arts	1.67%	2.02%
Bowling/ Bowls	1.65%	1.94%
Tennis	1.92%	2.27%
Gymnastics	2.15%	2.52%
Tennis	1.92%	2.27%
Billiards/ Snooker/ Pool	2.38%	2.39%
Volleyball	1.5%	3.03%
Fishing	4.25%	3.92%

Within China, there is a continuously increasing interest in sports in the wake of the global Olympic games and sports; and in return, the Chinese government has been able to earn a large amount of revenue from this industry. Its previous year revenue statistics are provided below;

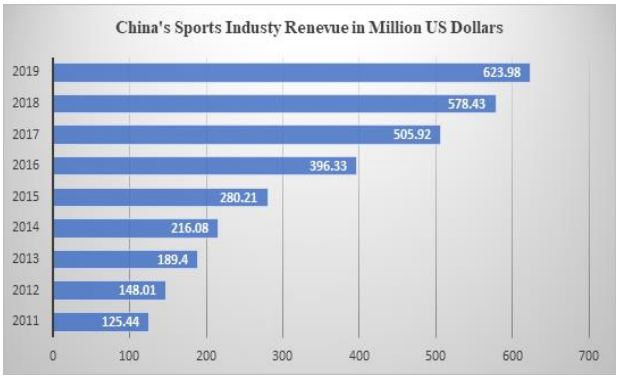

Figure 1. Industry revenue of "activities of sports clubs "in China from 2011 to 2019 (in million U.S. Dollars)

Therefore, after considering the in-depth background study, it becomes clear that there is a need to develop a problem statement which is majorly based on evaluating the influence of high-quality leadership in ensuring the physical well-being of athletes in China by significantly resolving the mystery of team identification and the burnout situation of players. This statement will directly help to cover the gap of previous researches by significantly exploring the importance of athlete's own perceived leadership quality and the leadership quality of athlete leaders on enhancing the physical well-being of Chinese athletes in an authentic way. The research objectives of this research study are to;

- Critically evaluate the importance of high-quality athlete leadership for the physical well-being of Chinese players.
- Statistically analyze the impact of athlete own perceived leadership quality and leadership quality of athlete leader on the physical well-being of Chinese players.
- Strategically examine the mediating role of team identification between athlete own perceived leadership quality, leadership quality of athlete leader and physical well-being in China state perspective.
- Critically investigate the moderating effect of burnout within the relationship of team identification and physical well-being in China state perspective.

Overall, this research study plays an important role in overcoming the literature gap on high-quality athlete leadership, team identification, burnout and physical well-being of players, especially in the Chinese sports perspective. Previously, many researches focus on related topics like Katrien Fransen along with others who explore the influence of high-quality athlete leadership on the health and burnout situation of Australian football teams, and also exaggerate the effect of identity leadership on the well-being and team functioning in sports by creating a psychological safety of missing link (Fransen, Haslam, et al., 2020; Fransen, McEwan, & Sarkar, 2020). In addition to them, work has been done on evaluating the role of coach-athlete relationship quality in the psychophysiological exhaustion of team sport athletes with the implications of cognitive and physical performance (L. Davis, Appleby, Davis, Wetherell, & Gustafsson, 2018); exaggerating the influence of talent developmental environment on the burnout and well-being of the Caribbean field athletes and youth track (Thomas, Gastin, Abbott, & Main, 2020); analyzing the differential interaction impact of mastering and performance atmosphere on the physical and emotional exhaustion of athletes under the role of athletes' gratitude (Chen, Wu, Ni, & Kuo, 2020); and considering the relationship between talent and sports development by conducting an empirical study on the psychological well-being of young athletes (Reverberi, Gozzoli, D'Angelo, & Littlewood, 2020). However, in all these previous researches, there is little

focus on Chinese athletes in their analysis portion to evaluate the influence of high-quality athlete leadership on upgrading their physical wellbeing under the role of team identification and burnout. This gap is effectively covered by this authentic study which carries a number of practical, theoretical and policy-making based implications. Moreover, its authentic data of analysis can be utilized by the China sports' management, leaders, coaches and decision-makers to analyze the importance of high-quality athlete leadership. Moreover, upcoming scholars can utilize its understanding in their future research and for hypothesis development.

After discussing the in-depth background study, problem statement, objectives, research gap and significance of current research paper in this introductory section, the next section will be based on discussing the previous scholars' studies on the related topics i.e., high –quality athlete leadership, physical well-being, team effectiveness and burnout etc., that help to propose hypothesis of this study along with considering their contribution and gaps. The third section, research methodology, will be based on exploring the data collection procedure, participants, measures and data analysis tests. After this, a results-based fourth section will contain an in-depth interpretation of statistical outcomes of this research study. The last section of this research paper will be based on discussion and conclusion in which all statistical tests will be justified through previous scholars' studies. In addition to this, the practical implications and design limitations of the study are also discussed in this section.

Literature Review

Social Identity Theory

Social identity theory is a theory that predicts intergroup behaviors based on perceived group status differences, expected stability and legitimacy of those status differences, and the expected ability to move from one group to another (Scheepers & Ellemers, 2019; Trepte & Loy, 2017). This type of theoretical understanding is mainly used to theorize about human's social selves. In the sports industry, such theoretical understanding leads to a kind of self-schema in which individuals perceived themselves to be a part (J. L. Davis, Love, & Fares, 2019; Mangum & Block, 2018; Nicholls & Rice, 2017). An athletic identity is established through the acquisition of confidence, skills, and social interaction during the sport (Chiang, Xu, Kim, Tang, & Manthiou, 2017). In existing literature, the majority of scholars utilize this theoretical framework in sports coaching and related contexts (Costa et al., 2020; S. Graupensperger, Benson, Kilmer, & Evans, 2020; Woolf & Lawrence, 2017). According to them, the social identity theory of leadership is applied in sport coaching field, and also that team social identity and high coaching are positively associated with the coaching performance outcomes i.e. sport confidence, sport motivation, coach evaluations and coaching competency (Cummins, O'Boyle, & Cassidy, 2017). Other scholars such as Mickael Campo and others utilize this social identity perspective when considering the emotions of sports groups (Campo, Mackie, & Sanchez, 2019). According to some scholars, social identity positively predicts the conformity at body individual and group levels which shows that athletes with stronger social identities are more liable to peer impact (S. A. Graupensperger, Benson, & Evans, 2018), and task goal enhances the expected strength of athletic identity on the sportspersonship (Yukhymenko-Lescroart, 2018).

High-Quality Athlete Leadership and Physical Well Being

According to previous scholars, high-quality athlete leadership causes a significant influence on the health and burnout situation of elite athletes. In the European Journal of Sports Science, they consider four different leaders' role i.e. task and motivational leaders on the field, and external and social leaders off the field, and at the end conclude that a good athlete leader is positively associated with better team member health and lower burnout situation under the significant mediating role of their team identification (Fransen, Haslam, et al., 2020). In 2019, another similar work performed by Thelma S. Horn examines the influence of feedback pattern of coaches on the psychological well-being of young sports athletes. According to them, developmental theories in the social-psychology field directly result in the significant adults' performance in relation to the well-being and psychological health of children. They posit that responses that adults provide to youngsters in their performance attempts' reaction may impact the evaluation and perceptions of youth sportsman's competencies and overall physical well-being (Horn, 2019). In doing so, they explore four dimensions of their feedback i.e., delivery, content, extent of stereotyping, and degree of growth orientation.

Athlete's Own Perceived Leadership Quality and Physical Well-Being

In the Sports Management Journal, Ye Hoon Lee considers the relationship between emotional intelligence, developmental goal orientation and servant leadership from the athletic directors' perspective. He considers 445 athletic directors from 48 states from the United States for online survey, and concludes that emotional intelligence is positively associated with servant leadership which in turn is positively associated with development goal orientation According to his mediation analysis, servant leadership plays a significant mediating role between emotional intelligence and development goal orientation among the athletic directors (Lee, 2019). In the same year, Yannick A. Balk with others considers the consequences and antecedents of perceived autonomy support in the elite sport by focusing on off-job recovery coaches and performance satisfaction of athletes. According to their online survey-based authentic data, the majority of respondents are elite coaches whose outcomes depict that

daily off-job based physical detachment of coaches causes a negative impact on physical fatigue, and such fatigue and its positive affect are related to daily work engagement, which in turn is positively associated with the perception of autonomy support of athlete (Balk, de Jonge, Geurts, & Oerlemans, 2019). Hence, the following hypothesis is proposed;

H1: There is a significant relationship between Athlete Own Perceived Leadership Quality and Physical Well-Being

Leadership Quality of Athlete Leaders and Physical Well-Being

In one study, Gavin Breslin and others (2017) conduct a systematic review of interventions to enhance the awareness of well-being and mental health in coaches, athletes and officials. They work on experimental/ quasi-experimental design and conclude four comprising coaches or service providers, four with athletes, one with officials, and one containing a combination of athletes and coaches. According to them, theory and evidence-based intervention programs directly increase the mental health and well-being of coaches, athletes and officials (Breslin, Shannon, Haughey, Donnelly, & Leavey, 2017). In the same year, Ye Hoon Lee with others investigates the relationship between coaching leadership style and the social responsibility of young athletes. According to the hierarchical regression analysis based statistical outcomes, a positive relationship exists between the democratic behavior of coaches and social responsibility of athletes, and a negative relationship exists between the autocratic behavior of coaches and social responsibility. They also conclude that athletes who expected their coaches to be behaving less autocratically and more democratically led to a higher level of social responsibility (Lee, Hwang, & Choi, 2017). After considering previous scholars' work, the following hypothesis is proposed:

H2: There is a significant relationship between Leadership Quality of Athlete Leaders and Physical Well Being

Mediating Role of Team Identification between Athlete Own Perceived Leadership Quality and Physical Well Being

In the Journal of Applied Sport Psychology, Katrien Fransen with others investigate the legitimacy of perception by mapping the leadership structure in 64 sports teams. Their outcomes depict that the perceived leadership structure of coaches is positively associated with the density of team's leadership networks. They focus on motivational, task, external and social leadership and conclude that the best coaches are those who adopt a shared leadership approach and boost the leadership quality of players (Fransen, Mertens, Cotterill, Vande Broek, & Boen, 2020). In the Tourism Management Journal, Lujun Su and Scott R. Swanson consider the influence of corporate social responsibility on the supportive green behavior and well-being of hotel employees under the mediating role of employee-corporate relationship. According to their statistical outcomes, both, organizational identification and trust partially mediate the impact of perceived corporate social responsibility on employee well-being and green behavior (Su & Swanson, 2019). After critically evaluating previous scholars' outcomes, the following hypothesis has been suggested.

H3: There is a significant mediating Role of Team Identification between Athlete Own Perceived Leadership Quality and Physical Well Being

Mediating Role of Team Identification Between Leadership Quality of Athlete Leaders and Physical Well-Being

In 2020, Minjung Kim with others recruit athletes to determine how their developmental states is affected by the authentic leadership of head coaches. Their major aim is to examine the relationship between authentic leadership of coaches, performance satisfaction, psychological capital of athletes, and psychological well-being. According to their statistical outcomes, authentic leadership of head coaches positively affects the psychological capital of athletes which in turn positively influenced both psychological well-being and performance satisfaction (Kim, Do Kim, & Lee, 2020). Another similar research by Katrien Fransen with others examines the competence-thwarting and competence-supportive role of athlete leaders by conducting an experimental test in a soccer context. According to their outcomes, the athlete leader is competence-supportive as compared to competence-thwarting with intrinsic motivation of teammates and increased performance as compared to control condition. They also conclude that leaders' influence on intrinsic motivation majorly accounted for the competence satisfaction of team members (Fransen, Vansteenkiste, Vande Broek, & Boen, 2018). Hence, the following hypothesis has been suggested;

H4: There is a significant mediating Role of Team Identification between Leadership Quality of Athlete Leaders and Physical Well Being

Moderating Role of Burnout Between Team Identification and Physical Well-Being

According to Michelle D. Lall and others (2019), physical well-being goes beyond the absence of burnout which is expected by transient episodes. They state that well-being included thriving, being challenged, and achieving success in various aspects of professional and personal life. In addition to this, they also identify and discuss the assessment tools related to resilience, quality of life, wellness, coping skills, and other positive states (Lall et al., 2019). After this, Daniel J. Madigan and others examine the relationship between coping tendencies and the change in the athlete burnout over the time frame. They consider 141 junior athletes to accurately measure burnout and tendencies. According to their conditional latent athlete curve modeling, coping tendencies significantly predict the changes in athlete burnout over the time. They conclude that avoidance coping is predicted to increase in athlete burnout, while problem-focused coping is unrelated to divert in athlete burnout (Madigan, Rumbold,

Gerber, & Nicholls, 2020). After critically evaluating previous scholars' understanding, the following has been proposed;

H5: There is a significant moderating Role of Burnout between Team Identification and Physical Well Being

Table 2.

Summary of Literature

Author	Main Contribution	Gap
(Fransen, Haslam, et al., 2020)	• Good athlete leadership is positively associated with better team member health and with lower burnout situation under the role of their team identification	• Its one-shot design may prevent the causal conclusion to be drawn • Its cross-sectional design limits the ability to infer causality from results • Its small sample size may cause objection
(Horn, 2019)	• Response adults provide to youngsters from leaders on their performance causes a major impact on their competencies	• Need to further examine the developmental transition and why coaches give feedback in specific ways
(Lee, 2019)	• Emotional intelligence positively associated with servant leadership which in turn influences the development goal orientation	• Lack of experimental research design/ longitudinal study • Lack of social desirability issues' data • Low psychometric properties of the instruments • Athletic coaches and young athletes are not considered • Lack of applicability of its study's findings to other sports contexts i.e. participant sports, intercollegiate sports, and community sports
(Balk et al., 2019)	• Physical and emotional detachment from work is not only essential for the health, well-being, and work engagement of elite coaches, but also beneficial for their daily sports experience	• Deficiency of performance satisfaction factor • Lack of physiological measures to further reduce common-method bias • Lack of considering the autonomy support from an athletes perspective • Lack of analysis data with coaches' nationality as a covariate • Need to investigate specific quantitative work-related variables like work hours and workload etc.
(Breslin et al., 2017)	• Theory and evidence-based intervention programs directly increase the mental health and well-being of coaches, athletes and officials	• Fails to consider the perspective of applied sport psychologists • Needs to more intensively and extensively review literature • Lack of conducting meta-analyses
(Fransen, Mertens, et al., 2020)	• Perceived leadership structure of coaches positively associated with density of team's leadership networks	• Lack of players' involvement in study outcomes
(Su & Swanson, 2019)	• Organizational identification and trust partially mediate the impact of perceived corporate social responsibility on employee wellbeing and green behavior	• Need to explore the potential impacts of each CSR dimension • Lack of other variables i.e. job satisfaction, organizational commitment, perceived organizational support within the relationship
(Kim, Do Kim, et al., 2020)	• The interactive effect of student development found within the relationship of authentic leadership and their psychological capital	• Need to work on more contextual factors • Lack of large sample sizes • Need to work on stratified sampling • Lack of objective measures of actual performance of sports level
(Fransen et al., 2018)	• Recommended coaches to invest in competence-supportive power to develop motivation and performance-enhancing team environment	• Need to examine the impact of actual athlete leader in basketball teams • Lack of longitudinal study in methodology
(Lall et al., 2019)	• Physical well-being goes beyond merely the absence of burnout	• Deficiency of overwhelming number of assessment tools
	• Avoidance coping predicted increased in athlete burnout • Problem-focused coping was unrelated to divert in athlete burnout	• Not considering the adult athletes • Need for large, multi-site collaborative projects to address burnout development in sports • Not utilizing longer periods of data collection, momentary assessment, and over non-competitive training periods

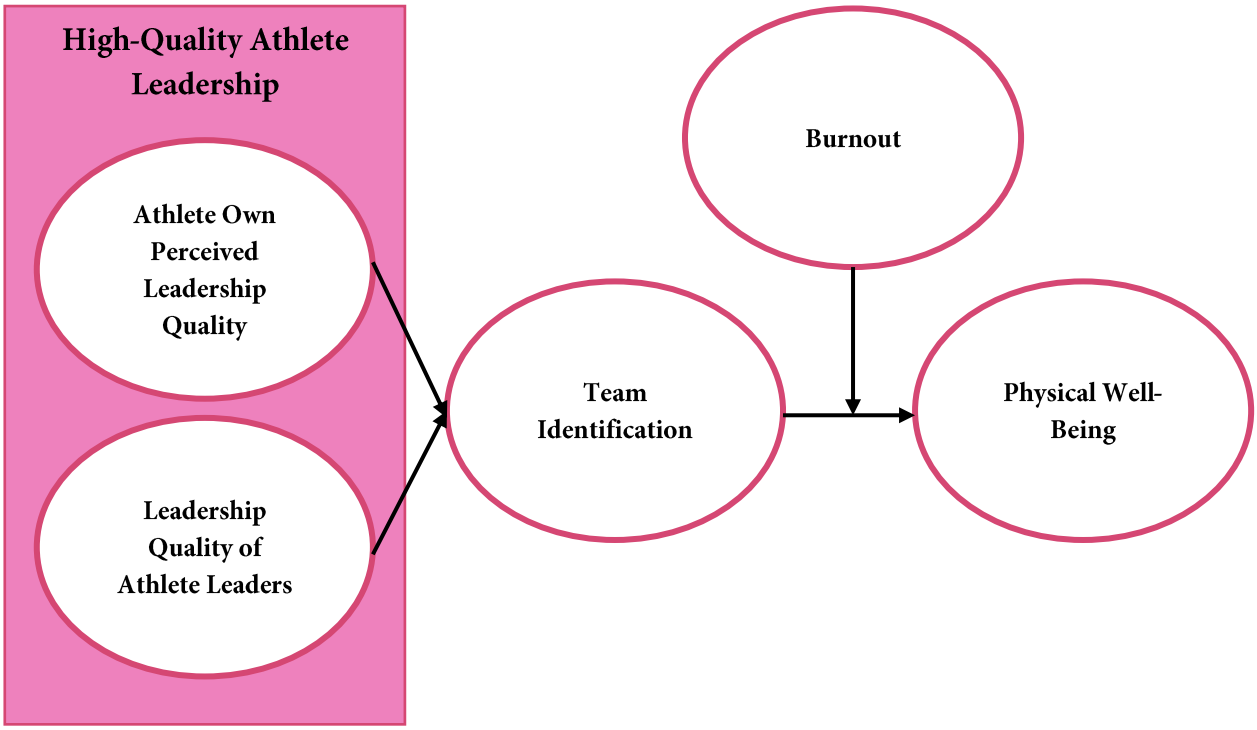

Figure 2. Social Identity Theory-based Framework

Methodology

Research Procedure

In order to critically evaluate the influence of high-quality leadership on the physical wellbeing of athletes in China under the role of team identification and burnout, a quantitative research design is adopted for accurate and reliable data collection and hypothesis testing. In this research, a primary source of data collection is included in which a closed-ended questions-based online survey is administered among the targeted respondents of this research study who mostly Chinese athletes are, their coaches, management, and related decision-makers to collect their experience based reliable outcomes on the tested variables. Prior to this authentic data collection campaign, the online questionnaire is authorized by the research supervisor, experts, and analysts to resolve all its items selection related issues. As far as its sampling technique is concerned, it becomes clear that a simple random sampling technique is employed in the data collection procedure. In an online research survey, 384 out of 400 provide their valid and authentic outcome on the tested variables and their related relationship.

Participants

In this quantitative research based reliable outcome, varied responses are given by the targeted respondents from the Chinese sports industry. According to their demographic analysis based constructive outcomes, it becomes clear that the frequency of male respondents is 213 at 56% as compared to the 171 frequencies of females at 44%. Also, their age-based demographic analysis confirms that 32% of the overall respondents are less than 25 years old, while 40% of them are within the age group of 25-35 years old, 24% is from 35 to 45 years old, and only 4% of them is more than 45 years old. As far as their experience-based demographics are concerned, it becomes clear that overall, 52 out of 384 respondents have less than 2 years' experience with 14%, 165 of them belong to 2 to 5 years' experience with 43%, 129 carried 5 to 8 years' experience with 34%, and only 38 have a massive experience of more than 8 years within this sports industry field (10%). Overall, its demographic analysis-based statistics concludes that the overall majority of the active respondents are based on adult male athletes with 2 to 5 years' relevant experience within this field.

Measures

In this research study, high-quality athlete leadership i.e., athlete's own perceived leadership quality and leadership quality of athlete leaders are considered as major independent variables, team identification as a mediator, burnout as a moderator, and physical wellbeing is studied as a dependent variable. In order to efficiently measure such variables' tested indicators, different authentic and reliable research articles are considered. Like the high-quality athlete leadership and its related sub-variables are measured through rating each Chinese diverse athletes team member with respect to their leadership quality in each leadership role (i.e. motivational, task, external and social leadership) which has already been utilized by (Fransen et al., 2014) in their study. In such measurement, 11-point Likert scales, ranging from 0 (from poor leader) to 10 (very good leader) along with athlete name are

allocated in an online survey. The mediating role of team identification is measured through 4 items that have been originally suggested by (Cruwys, Haslam, Dingle, Haslam, & Jetten, 2014; Doosje, Ellemers, & Spears, 1995). Such responses are made on the 7-point Likert scales that range from 1 (strongly disagree) to 7 (strongly agree). The burnout state of participants is measured through 9 major items that suggested by (Jetten, Haslam, & Alexander, 2012). Such measures are also utilized by (Fransen, Haslam, et al., 2020) in their hypothesis testing. They include three subscales that correspond to the three core components of burnout i.e., lack of accomplishment, exhaustion and callousness. In this burnout indicators' measurement, a 7-point Likert scale (strongly disagree=1 to strongly agree=7) is utilized. Lastly, physical well-being is measured with tested items adapted from the (Park, Kim, Yoon, & Joo, 2017; Ryff & Keyes, 1995). The sample item of such scale is mentioned as; "I have confidence on my own suggestion, even if they are contrary to the general consensus;" "In general, I feel that I am in charge of a situation in which I live;" and " I am quite perfect at managing many responsibilities of my duty life."

Data Analysis

After collecting authentic data through an online research survey, different relevant statistical outcomes are performed that help justify or nullify the hypothesis of this study. These include the reliability and normality based descriptive test, KMO and Bartlett's Test, Rotated Component Matrix, and the Common Method Bias which are conducted to determine whether data collected was reliable and effectively loaded on the tested models or not, so that the major SPSS tests can be implemented (Landau, 2019; Mensah & Dadzie, 2020). In its analysis, the correlation, hypothesis testing, and mediating and moderating effect based statistical outcomes are also considered whose P-value, variance %, beta, t-value and VIF related outcomes help to derive a constructive outcome-based research study (Hatzinikolaou & Katsarou, 2019; Uzorh, Okafor, Igbokwe, & Nwosu, 2017).

According to the above descriptive statistics of reliability and normality, it becomes clear the Cronbach alpha value of each tested variable is greater than 0.80 which depicts the reliable outcomes of these statistical outcomes. As the standard deviation values show that the team identification (TID) variable has least deviated from its mean position, this means this mediating variable strongly impacts on physical well-being (WB) which is 1.09 times deviated from its mean position. The athlete's own perceived leadership quality (OQ) deviates 1.02 times from its mean position while the leadership quality of athlete leader (LQ) and burnout (BO) deviates from their means position with 1.12 and 1.14 times, respectively.

Results

Table 3.

Descriptive, Reliability and Normality

	Cronbach alpha	Min	Max	Mean	SD	Skewness
OQ	.916	1.00	5.00	3.2949	1.02024	-.216
LQ	.930	1.00	5.00	3.4512	1.12214	-.518
TID	.893	1.00	5.00	3.3451	.96601	-.385
BO	.918	1.00	5.00	3.5689	1.14168	-.595
WB	.944	1.00	5.00	3.6059	1.08792	-.577

Table 4.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.947**
Bartlett's Test of Sphericity	Approx. Chi-Square	11623.093
	df	351
	Sig.	.000

Table 4 of KMO and Bartlett's Test depicts that KMO value is within their threshold range with significant (0.000) outcomes of sphericity test. It means that this model is a good fit for the authentic statistical outcomes.

Table 5.

Rotated Component Matrix

	Component				
	1	2	3	4	5
OQ1				.796	
OQ2				.865	
OQ3				.822	
OQ4				.781	
LQ1			.809		
LQ2			.816		
LQ3			.793		
LQ4			.803		
TID1					.808
TID2					.764
TID3					.756
TID4					.804
BO1	.889				
BO2	.834				
BO3	.810				
BO4	.863				
BO5	.889				
BO6	.868				
BO7	.883				
BO8	.843				
BO9	.850				
WB1		.755			
WB2		.804			
WB3		.843			
WB4		.834			
WB5		.828			
WB6		.853			

The above rotated component matrix based authentic table shows that each item of tested variables is effectively loaded on the testing model. The reason is that all the rotated component matrix values are more than 0.7. A common method bias is used to explore the bias in a dataset. It is also known as the common method variance. Its initial

eigenvalues and extracted sum of squared loading-based variances percentages are provided in the following figure.

Table 6.

Common Method Bias

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.619	50.442	50.442	13.619	50.442	50.442
2	3.114	11.534	61.976			
3	2.179	8.069	70.045			
4	1.723	6.381	76.426			
5	1.422	5.267	81.692			

The above table depicts that the total percentage of variance of all the five tested variables is 50% which means there is no common method bias and the collected data is ready for further statistical analysis tests. A correlation is based on critically evaluation of the mutual connection or relationship between two or more variables. It means that its statistical measures indicate the extent to which two or more variables fluctuate together. In positive correlation, both tested variables tend to increase or decrease in parallel, while negative correlation depicts that if one variable increases/ decreases then the other variable will decrease/ increase in an opposite direction. Its statistical outcomes are mentioned below;

Table 7

Correlation

	OQ	LQ	TID	BO	WB
OQ	1				
LQ	.455**	1			
TID	.511**	.502**	1		
BO	.477**	.583**	.463**	1	
WB	.447**	.478**	.521**	-.500**	1

According to the above-mentioned correlation test, it becomes clear that there is a positive significant correlation between the tested variables. For instance, athlete's own perceived leadership quality (OQ) is 45% correlated with physical well-being (WB), while the leadership quality of athlete leader (LQ) is 48% and team identification (TD) is 52% correlate with physical well-being (WB). On the other side, only burnout (BO) shows a negative significant correlation with physical wellbeing (WB). Hypothesis testing is a statistical method for testing how precisely a mathematical model is based on one set of data in order to predict the nature of other data set developed by a similar process.

The above-mentioned hypothesis testing of major variables, dependent and dependent, explores the significant relationship between them because of their P-value (0.000) being lower than 0.05. The standardized value between OQ and WB is 0.289 with a 5.988 t value, while between LQ and WB is 3.47 with a 7.176 t value. Also, its VIF (1.261) based multicollinearity test depicts that it is within the threshold range (lower than 3). As the Durbin Watson test for diagnostic autocorrelation is also within its threshold range of 1.56 (lower than 2), it means that is no autocorrelation issue within this data. In order to consider the mediating and moderating effect of selected variables, the following table shows the related outcomes;

Table 8.

Hypothesis Testing

Hypothetical Path	B	T	P-Value	VIF
OQ→WB	.289	5.988	.000	1.261
LQ→WB	.347	7.176	.000	1.261
R Square	.291	-	-	-
F Stat	79.708	-	-	-
P value	.000	-	-	-
Durbin Watson	1.56	-	-	-

Table 9.

Mediating and Moderating Effect

Hypothetical Path	B	T	P-Value
OQ→TID→WB	.216	6.599	.000
LQ→TID→WB	.183	6.402	.000
TID*BO→WB	-.051	-1.195	.232

According to the above hypothetical path among the tested variables, TID acts as a significant mediating variable between OQ and WB, and also between LQ and TID. It means, this team identification factor significantly strengthens the relationship between OQ, LQ and WB. While the negative moderating role of BO is unable to significantly perform among TID and WB because of its negative beta and T-value with 0.232 P-value. A histogram, as mentioned below, is a diagram majorly consisting of rectangles whose area is proportional to the frequency of variable, and whose class interval is represented along with width.

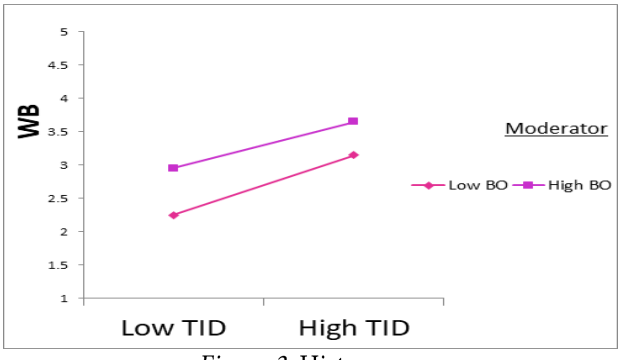

Figure 3. Histogram

The above histogram-based frequency of regression standardized residual depicts that there is no normal distribution has been seen on the dependent variable of this research study with the standard deviation value of 0.997. A graphical representation| has been shown in the figure below;

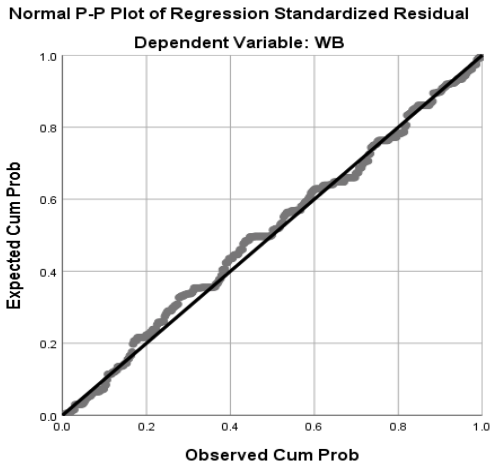

Figure 4. Normal P-Plot of Regression Standardized Residual

The above normal p-plot of regression standardized residual depicts that almost all the residuals are likely closed to the diagonal line which represents the ideal no more distribution. Therefore, this visual representation of the tested data confirms that there is no normally distributed.

In regression and statistics analysis, moderation mostly occurs when the relationship between two variables majorly dependent on the third variable, and such a third variable is referred to as moderator. Such kind of relationship is essential for ensuring the integrity in assessment tasks at a point of stages and designs. A visual representation of this is reproduced below;

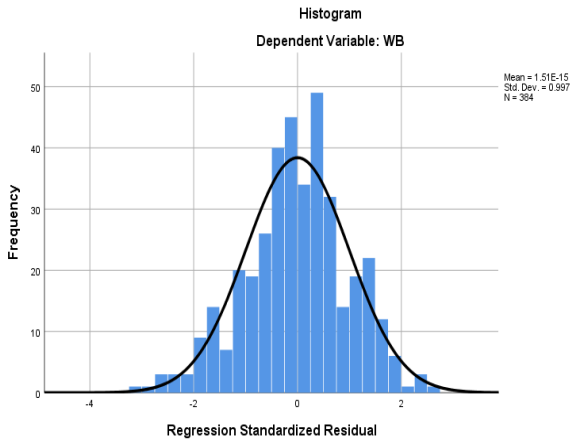

Figure 5. Moderating Analysis

According to the above figure of moderating analysis, it becomes clear that burnout at both low and high stage is unable to cause a significant effect on the relationship between team identification and physical wellbeing.

Discussion and Conclusion

Discussion

According to above mentioned statistical outcomes, it becomes clear that there is a significant positive relationship between high-quality athlete leadership and physical wellbeing because both the variables i.e., athlete's own perceived leadership quality and the leadership quality of athlete leader, directly boost the physical wellbeing of the Chinese athletes. According to the respondents' outcome of this research survey, the team identification plays a significant mediating factor that positively enhances the relationship between athlete own perceived leadership quality and physical wellbeing, and between leadership quality of athlete leader and physical wellbeing of Chinese athletes in their sports performance. These justified hypotheses are discussed by previous scholars in their research studies; Minjung Kim with others conclude that the psychological capability of student athlete positively enhances the school psychological wellbeing and satisfaction under the mediating role of school-athlete engagement (Kim, Oja, Kim, & Chin, 2020). Moreover, a strong coach-athlete relationship significantly impacts on Stroop performance (L. Davis et al., 2018) and emotional intelligence is positively associated with subjective well-being under the mediating role of emotional exhaustion and job satisfaction (Lee, R. Richards, & Washhburn, 2020). According to Julius Jooste and Alliance N. Kubayi (2018), an efficient coach leadership style causes a significant influence on the psychological wellbeing among the South African national basketball players (Jooste & Kubayi, 2018). After this, Higinio Gonzalez-Garcia and others also explore similar outcomes in 2020 by stating that coach social support significantly and positively predicts the direction of a negative impact during the competition, controlling for the pre-competitive diverse affect direction. According to them, coach social support emerges as an acceptable coaching behavior (González-García, Martinent, & Nicolas, 2020).

While the majority of respondents consider that the burnout factor does not cause a major influence on the overall physical wellbeing of Chinese athletes under the influence of high-quality athlete leadership because such leadership significantly enhances the well-being concept among players that reduces the negative impact of burnout. Therefore, the hypothesis of this research study is nullified i.e., burnout acts as a significant moderating role between team identification and physical wellbeing. According to Christine E. Pacewize and others (2019), low-moderate negative impact is found for the social support and burnout situation, and positive impact is found for negative social communication with burnout (Pacewicz, Mellano, & Smith, 2019). Moreover, Hannah Grace

Vanorsby state that perception regarding task-involving, higher caring with lower ego-involving climate is related to reducing the sense of accomplishment, lower physical exhaustion and devaluation of sports (Vanorsby, 2017); and Ye Hoon Lee and Heete Cho conclude that emotional exhaustion is negatively interlinked with harmonious passion but causes a positive impact on obsessive passion (Lee & Cho, 2020). As far as Candice E. Thomas with others' point of views is concerned, it becomes clear that a supportive and positive talent development environment is directly associated with lower athlete burnout and better athlete wellbeing (Thomas et al., 2020).

Conclusion

After critically discussing the statistical outcomes with respect to previous scholar's opinion, it becomes clear that there is a significant relationship between high-quality athlete leadership on physical well-being in the Chinese state perspective. This is an authentic data-based reliable research which is primarily based on a quantitative research design vis-à-vis data collection, sampling and analysis portion. In its research procedure, a primary source of data collection is used wherein an online questionnaire is randomly distributed among the targeted respondents i.e., Chinese in-field athletes, coaches, experts and related decision-makers to gain their understanding on the related topics. According to their demographic states, only 384 out of 400 are able to provide a valid outcome and majority of them belong to adult male athletes with 2 to 8 years' experience of sports/athletics. After implementing the correlation, hypothesis testing and moderating & mediating effects based statistical outcomes in its analysis portion, it becomes clear that the majority of its hypothesis are justified as there is a significant positive relationship between athlete own perceived leadership quality and physical well-being, and between leadership quality of athlete leader and physical wellbeing; moreover, team identification also plays a significant mediating role between the relationship of athlete own perceived leadership quality, leadership quality of athlete leader and physical well-being. However, only one hypothesis has been nullified that there is a significant moderating role of burnout that exists between team identification and physical well-being. It means that most Chinese athletes and their related bodies are in-favor of high-quality athlete leadership in their sportsman training and well-being purposes. Overall, valid outcomes from this research can play a significant role in the field of athletes' wellbeing-based analytical outcomes.

Future Implications

As far as its implications are concerned, it becomes clear that this study carries practical, theoretical, and policy-oriented implications for relevant stakeholders in the Chinese sports industry. For instance, its reliable source of constructive outcomes can be utilized by Chinese sports community, including athlete's trainers, decision-makers and related boards/authorities to implement high-quality athlete leadership in their young and adult athletes training them as to how much the perceived leadership quality is essential for their efficient sports performance. Moreover, its data can be considered by in-field athletes to understand the importance of perceived high-quality leadership for their workout and overall well-being for an improved performance in the long run. In addition to this, its authentic data can be reused by upcoming related field scholars, analysts and writers in their literature review and discussion portions in order to enhance the authenticity of their outcomes. This research also gives a new direction to analysis and hypothesis development by exploring new variables. In addition, its valid data can be considered by stakeholders in the Chinese government, policymakers, and related sports authorities to develop standards regarding athlete leadership in upcoming years.

Limitations and Future Researches

This research study contains valuable insights for stakeholders in the Chinese sports sector. However, there are some notable limitations that may cause a negative impact on its significance and acceptability factors. Firstly, this research study faces some contextual gap in its analysis portion i.e., only China is considered where only its sports industry based high-quality leadership is considered. This specific industry and state-based data analysis can never be implemented in other states' scenario. Therefore, there is an opportunity for future scholars to overcome this contextual gap by conducting a comparative analysis based constructive outcomes in their analysis portion by considering more than one state or different industrial leadership approaches to analyze the well-being of players. This act may add more values to the acceptability factor of this research. As far as its methodological gap is concerned, it becomes clear that this research only focuses on a primary data based quantitative research design in terms of data collection. However, if the psychological understanding-based interviews or the mixed method of research is also used in its methodological framework, then there may be a higher chance that more authentic and reliable outcomes are generated from the targeted respondents of this study. This methodological and contextual gap can be accomplished by upcoming scholars in their research analysis and can also motivate them to derive a versatile outcome in their future research.

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