

## The Relationship between Preferred Coaches' Leadership Styles and Stress Levels among Chinese College Bridge Athletes

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### ABSTRACT

Bridge is an intellectual sport that helps to develop the ability to analyze logic and teamwork, and it is well developed in Chinese colleges. It was found that the leadership styles of Chinese college bridge coaches and the self-perceived stress of athletes have received less attention from scholars. This study aimed to explore the leadership styles of Chinese college bridge coaches, the self-perceived stress level of college bridge athletes, and the relationship between these two factors. This study contributes to the alleviation of self-perceived stress in college bridge athletes and to help college bridge coaches relieve the stress of bridge athletes. The research design for this study was quantitative. Respondents were athletes competing in the 2023 Chinese Collegiate Bridge Championships (N=210). The coaches' Leadership Style Scale and Perception Stress Scale (Chinese 14-item, PSS) were used as the survey tools for this research. The data were analyzed by SPSS 26.0 software for extreme values, extreme minima, mean, standard deviation, and Pearson correlation. It was found that there are more democratic leadership styles ( $M = 4.18 \pm 0.88$ ) and less authoritarian leadership styles ( $M = 1.40 \pm 0.59$ ) among college bridge coaches. In the analysis of the stress data, most collegiate bridge athletes had low to moderate levels of self-perceived stress ( $M=21.77 \pm 7.28$ ), and only 17.1% had high levels of stress. In the correlation analysis between the two, self-perceived stress scores were significantly negatively correlated with the democratic leadership style ( $r = -0.193$ ,  $p < 0.01$ ), indicating that the democratic coaching style can dramatically reduce the self-perceived stress of bridge athletes. There is no significant correlation between self-perceived stress scores and authoritarian leadership styles.

**Keywords:** leadership style, stress, bridge athletes, bridge coaches

## INTRODUCTION

Bridge is an intellectual sport that helps develop the ability to analyze logic and teamwork, involving knowledge of probability, logic, psychology, and other aspects, and as a team sport, it fits well with the spirit of contemporary sports (Rao & Wang, 2021). In the 1920s, with the introduction of Western culture into China at that time, the bridge received the attention of elites from all walks of life. In 1980, the China Bridge Association was established. Following in 2004, the bridge branch of China University Sports Federation was established. Bridge is currently an official competition event at the Asian Games and a demonstration event at the Olympics.

Since the establishment of the bridge branch of the China University Sports Association in 2004, the sport of bridge has been developing rapidly in colleges and universities. The China University Bridge Championship, the highest level of bridge competition in Chinese universities, has been successfully held 20 times. Statistics show that there are more than 200 colleges and universities in China that participated, which played a very important role in promoting the popularity and development of bridge among college students and the spread of bridge culture (Pan, 2018). Data show that in 2017, the Chinese women's team won the Venice Cup women's team championship in the World Bridge Team Championship, with two college student-athletes among the team members; in 2019, the Chinese women's team won the runner-up of the tournament, with three college student-athletes among them, indicating that the development of Chinese college student bridge sport has made a great contribution to the country (Shen, 2022).

Despite that, studies have shown that most students in Chinese colleges and universities receive only technical and tactical learning in the process of training college athletes while neglecting the control and guidance of students' psychology (Cai et al., 2010). Compared to traditional sports that require athletes to have good physical fitness, bridge, as an intellectual sport, it places more emphasis on athletes' stress resistance, and urgently addresses the issue of managing athletes' mental stress (Wu, 2019). In the process of solving the above difficulties, college bridge coaches play a very important role, and they should provide more direct help to the athletes. This leads us to think about what kind of coaches' leadership style is more conducive to alleviate the psychological pressure of college bridge student athletes and promoting the overall healthy development of college bridge athletes.

### *Problem Statement*

Given the large number of college athletes, more attention should be paid to them, whether by scholars, coaches, or administrators. College athletes have to participate in training and competitions while completing their studies, and they need to improve their internal relations and other matters, which will inevitably lead to a lot of stress (Cox et al., 2017). As athletes' most important partners, coaches influence athletes' behavior and psychology (Ouyang et al., 2020). Coaches should take timely and effective measures to relieve the pressure of college athletes. They should also create a relaxed and positive learning atmosphere for college athletes (Malloy & Kavussanu, 2021).

However, there is still a gap in researches addressing the stress in the college bridge player population. There is an urgent need to explore how different leadership styles of leadership presented by college bridge coaches affect the players. As bridge practitioners know, the growth of bridge athletes is a long process (Punch & Snellgrove, 2020). Although college bridge coaches put a lot of effort into teaching, the athletes' development, training, and competition processes, it is not clear whether their own leadership style meets the needs of growing athletes. In addition to basic technical, tactical, and game skills, stress management is lacking in the bridge training system.

Furthermore, Keatlholetswe and Maletle (2019) have put forward similar views, their research led us to the following thoughts that if the above problems cannot be effectively solved, it is not clear at what level the stress perception of college bridge student athletes is, and it will not be understood how the leadership styles of college bridge coaches affect the psychology of athletes. Additionally, the widespread development of bridge sport in colleges and universities is always at a low level, which is not conducive to the overall development of college bridge student athletes.

Based on the discussion above, several studies have been conducted to investigate the relationship between preferred coaching leadership style and the level of stress among Chinese college bridge athletes. Therefore, this study aims to investigate the leadership styles of college bridge coaches, and the perceived level of self-stress among college bridge athletes in China, and to explore the relationship between the two factors. It will help Chinese college bridge athletes learn bridge more effectively, provides theoretical support for relieving stress, and thus promotes the overall development of college bridge student athletes.

### *Coaches' Leadership Style*

Leadership behaviors are also considered as leadership styles, the common leadership styles are autocratic, democratic, and laissez-faire (Gandolfi & Stone, 2017). According to Rahbi et al. (2017), democratic and authoritarian leadership styles have a positive impact on outcomes while laissez-faire leadership has a negative impact. Cheng et al. (2013) pointed out that the coaches' leadership styles refer to the various behaviors that coaches exhibit in guiding athletes to achieve their training goals. In the field of sports leadership, democratic and authoritarian behaviors of coaches are the two most frequently studied dimensions. Many studies on sports coaches deal with only two dimensions, democratic leadership style and autocratic leadership style (Yang, 2008). The same is true for bridge coaches. Most of the people engaged in bridge coaching in Chinese universities are not professional coaches. They rely on passion and love for the bridge cause to teach students to learn the game, so most bridge coaches fall into two categories of style, democratic and autocratic, and there are almost no laissez-faire bridge coaches.

Authoritarian leadership is a type of leadership style that emphasizes the will of the leader. Authoritarian leaders make all the decisions alone and are often viewed as bossy which may cause subordinates to be resentful (Nagendra, Asha, and Farooqui, 2016). Authoritarian coaches tend to impose their own will and demand athletes to train and compete strictly according to their own directives. Democratic leadership is a type of leadership style that encourages subordinates to take an active role of the decision-making process in the organization. Subordinates are encouraged to share and express their ideas which fosters motivation, creativity, and commitment (Cherry, 2016). Democratic coaches are athlete-centered in the coaching process and allow athletes to participate in decisions related to training and competition, and the relationship between coaches and athletes is cooperative (Wang & Zhang, 2017).

### *Stress Among Collegiate Athletes*

Many factors contribute to the rise in stress seen across college and university campuses. With stress on the rise for college students, it is important to recognize the additional responsibilities and stressors which exist for collegiate athletes. Collegiate athletes must cope with both the academic and athletic stressors associated with performance and competition (Yusufov et al., 2019). The number of factors which contribute to stress for college students has the potential to be magnified when taking on the responsibility of being a collegiate athlete simultaneously. Specific stressors which collegiate athletes experience can include sports injury, relationships with teammates, win and loss records, playing time, struggles in academic classes, disagreement with coaching style, and managing the dual role of being an athlete and student. All of the above, along with attending classes, can contribute to a potentially higher level of stress for collegiate athletes (Van Slingerland et al., 2019).

In another study on sports injuries, Pensgaard et al. (2018) investigated what psychosocial risk factors contributed to chronic versus overuse injuries in a sample of 193 elite female football athletes. Results of the study showed a positive association between stress originating from relationships with teammates and acute injury and a significant correlation between stress originating from the relationship with the coach and overuse injuries. Cosh and Tully (2015), in a study of college athletes, also found the coach-athlete relationship to potentially be a high source of stress for collegiate athletes. The frequent contact between coaches and college athletes has a great impact on the pressure of college athletes.

## METHODOLOGY

### *Research Design*

The research design for this study was quantitative. Firstly, all data, including the leadership styles of Chinese college bridge coaches, and the stress of Chinese college bridge athletes, was collected and analyzed separately. Secondly, we explored the inner connection of the two parts of the data and summarize the different effects and impacts of different leadership styles on the stress of Chinese college bridge athletes.

### *Samples*

This study was conducted on athletes who participated in the 2023 Chinese College Bridge Championships (N=210). All survey questionnaires were distributed to the athletes. The sample size for this study was determined based on the selection formula of Krejcie and Morgan (1970) on sample size:  $s = X^2NP(1-P) / d^2(N-1) + X^2P(1-P)^*$ .

\*s = required sample size.

$X^2$  = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

N = the population size.

P = the population proportion (assumed to be .50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (.05).

### *Instrumentations*

The questionnaires used in this study are well-established and reliable and have been used extensively by Chinese scholars. The Coaches' Leadership Style Scale developed by Yang (2008) was used, which measures the leadership style of current coaches in training and competition. The Perceived Stress Scale (Chinese 14-item PSS) developed by Yang et al. (2003) was used, which measures the perceived stress of athletes.

### *Data Analysis*

a) The scores of stresses and leadership style of Chinese college bridge athletes was analyzed by means of maximum value, minimum value, mean, and standard deviation.

b) The correlation between coaches' leadership style and stress was studied by Pearson correlation.

## RESULT AND DISCUSSION

### *RESULT*

#### *The Leadership Style among Chinese College Bridge Coaches*

**Table 1:** The results of reliability and validity tests (n=210)

Item	DS	AS
Cronbach's $\alpha$	.904	.806
Kaiser-Meyer-Olkin (KMO)	.880	.796
Approx. Chi-Square	661.449	337.201
Bartlett's Test of Sphericity	df	10
	Sig.	.000

DS=Democratic Leadership Style, AS=Autocratic Leadership Style

As shown in Table 1, the Cronbach's  $\alpha$  coefficient for the democratic dimension of the scale in this study is 0.904, and the Cronbach's  $\alpha$  coefficient for the autocratic dimension is 0.806. The democratic leadership style has a KMO value of 0.880 and autocratic leadership style has a KMO value of 0.796. It can be seen that the scale has high internal consistency and strong reliability.

**Table 2:** Description of Leadership Style of Coaches ( $n=210$ )

Category	Min	Max	M	SD
Democratic Leadership Style	1	5	4.18	0.88
Autocratic Leadership Style	1	5	1.40	0.59

Min=Minimum, Max=Maximum, M=Mean, SD=Standard Deviation

From Table 2, the democratic leadership style has a minimum value of 1 and a maximum value of 5 with a mean value of  $4.18 \pm 0.88$ . The autocratic leadership style has a minimum value of 1 and a maximum value of 5 with a mean value of  $1.40 \pm 0.59$ .

### *The Level of Stress among Chinese College Bridge Athletes*

**Table 3:** The results of reliability and validity tests ( $n=210$ )

Item	Value
Cronbach's $\alpha$	.776
Kaiser-Meyer-Olkin (KMO)	.848
Approx. Chi-Square	1325.102
Bartlett's Test of Sphericity	df
	91
	Sig.
	.000

As shown in Table 3, the Cronbach's  $\alpha$  coefficient for the Perceived Stress Scale in this study is 0.776. The Perceived Stress Scale has a KMO value of 0.848. It can be seen that the scale has high internal consistency and strong reliability.

**Table 4:** Description of Perceived Stress Scale of Bridge Athletes ( $n=210$ )

Category	Min	Max	M	SD
PSS (Total Score)	1	40	21.77	7.28

**Table 5:** The Percentage of Bridge Athletes with Different Stress Scores ( $n=210$ )

The range of stress score	Stress Category	Athletes number	Percentage (%)
0-14	Low	39	18.6
15-28	Medium	135	64.3
29-42	High	36	17.1
43-56	Very High	0	0

From Table 4, the Perceived Stress Scale has a minimum value of 1 and a maximum value of 40 with a mean value of  $21.77 \pm 7.28$ . As can be seen in Table 5, the number of athletes with stress scores in the range of 0-14 is 39, or 18.6%, with low self-perceived stress. The number of athletes with scores in the 15-28 range was 135 or 64.3%, with moderate self-perceived stress. The number of athletes with high self-perceived stress was 36 or 17.1%. The number of Chinese college bridge athletes with very high self-perceived stress was zero.

**Table 6:** The Pearson Correlation between Athletes' Stress and Coaches' Leadership Style ( $n=210$ )

		<b>Democratic Leadership Style</b>	<b>Autocratic Leadership Style</b>
Stress	<i>r</i>	-.193**	.072
	<i>p</i>	.005	.297

\*\* . Correlation is significant at the 0.01 level (2-tailed).

According to Table 6, Self-perceived stress was significantly negatively correlated with democratic leadership style ( $r = -0.193$ ,  $p < 0.01$ ). Self-perceived stress was positively related to authoritarian leadership style, but not significantly.

### *Discussion*

#### *The Leadership Style among Chinese College Bridge Coaches*

In previous studies, literature has been found on survey data on the leadership styles of Chinese college bridge coaches. Therefore, the results of this study were analyzed in comparison with the data on the leadership styles of coaches in other sports to fill the research gap on the leadership styles of Chinese college bridge coaches. The results of the data analysis in this study showed that Chinese college bridge athletes perceived higher scores on coaches' democratic leadership styles (4.18) than autocratic leadership styles (1.40), which is similar to the findings of Li et al. (2017), and Wang and Zhang (2017). These findings suggested that the perceived democratic style of Chinese college student bridge athletes is superior to the authoritarian style, which is in line with the general pattern of leadership style types of Chinese coaches (Niu, 2012).

However, it is worth noting that the average score of the democratic leadership style of bridge coaches in Chinese universities is 2.78 higher than that of the autocratic leadership style. This difference is much larger than the difference between the two scores in the leadership styles of coaches of many other sports in China such as Cheng et al. (2013), and Ma and Wang (2006). There may be several reasons for this result: 1) It is related to the current status of bridge sport programs in Chinese universities. Bridge is still a niche sport in China, and there are very few full-time bridge coaches in colleges and universities, and many college and university coaches are engaged in bridge teaching activities because of their hobbies and love of bridge (Pan et al., 2019). This may result in bridge coaches scoring much higher on democratic leadership style than autocratic leadership style. 2) This may be related to the intellectual program attributes of the sport of bridge. Intellectual programs are more in need of a full and close communication process between coaches and athletes in the coaching process, and a relatively equal communication atmosphere is conducive to coaching effectiveness (HajAlizadeh & Khorasani Anari, 2016).

Furthermore, the data from this study showed that the mean score for the autocratic leadership style was only 1.4, which suggests that college bridge coaches are more inclined to adopt democratic behaviors and have a lower percentage of autocratic behaviors. Autocratic coaches can be cold and distant toward athletes, dislike athletes' questions, unconditionally demand that athletes accept advice, and direct practices and games in a condescending tone (Khalaj et al., 2011). However, this model of leadership is not appropriate for bridge coaches. The growth of athletes focuses on the development of thinking patterns, which involves more of cerebral activity that requires a timely exchange of ideas between athletes and coaches to correct errors and make faster progress (Ouyang et al., 2020). The results of the present data also indicate that the autocratic leadership style of the coach has a significantly negative impact on verbal communication (Jowett & Ntoumanis, 2004). This further validates the above point that bridge is the art of communication. If communication is limited, then bridge teachers are less effective.



### *The Level of Stress among Chinese College Bridge Athletes*

According to the result analysis standard of the perceived stress scale, there were 174 college bridge athletes with low and medium stress scores, accounting for 82.9% of the total, indicating that the self-perceived stress level of most college bridge athletes is not high. The number of people with high perceived pressure was 36, accounting for only 17.1% of the total, and no one felt high pressure. The average stress score of bridge athletes was  $21.77 \pm 7.28$ , indicating that the overall perceived stress of bridge athletes is not high, which was similar to the research results of Böke et al. (2019), and Musabiq and Karimah (2020) on stress and mental health of college athletes. However, it was different from the research results of Daumiller et al. (2022), and Pensgaard et al. (2018), their research showed that professional or elite self-perceived stress scores are higher. A possible reason for this is that professional or elite athletes face more survival crises, while college bridge athletes face fewer survival crises.

According to the research of Punch and Snellgrove (2020), and Brkljacic et al. (2017), this study should not overlook a very important practical problem, that is, the attribute of College Students' bridge is mass sports, rather than professional competitive sports. It can be seen that the results of this study are one-sided, and the results of stress data analysis may not match the stress perception of professional bridge athletes, which needs further investigation and exploration in the follow-up study.

### *The Relationship of Leadership of Coaches and Stress of Chinese College Bridge Athletes*

The results of this study showed that there was a significant negative correlation between self-perceived stress and Democratic leadership style ( $r = -0.193, p < 0.01$ ), indicating that Chinese college bridge athletes showed a low level of stress in the face of democratic coaches, which is similar to the researches of Rahbi et al. (2017). Democratic coaching is an athlete-centered teaching process that allows athletes to participate in decisions related to training and competition. The relationship between coaches and athletes is cooperative. This promotes a more harmonious expression of athletes' thoughts, releases the pressure of relaxation, and enables them to participate in training and competition in a more relaxed state (Wang & Zhang, 2017).

The results of this study showed that self-perceived stress was positively correlated with authoritarian leadership style, but not significantly, which is similar to the research of Yan (2019), and Chelladurai (2016). In other words, the coach's authoritarian leadership style will not significantly increase the athletes' self-perceived stress level. This may also be because authoritarian leaders in Chinese culture often integrate into the relationship between coaches and athletes. Compared with democratic coaches, autocratic coaches will pay more attention to the life, training, and even family of athletes. These relationships and concerns offset some self-perceived pressures on athletes (Zhu et al., 2017).

The results of this study are also similar to the research of Chen (2003), different leadership styles of coaches have different effects on Athletes' psychological stress and psychological adaptation, reflecting the interaction effect between coaches' behavior and athletes' stress. This also requires coaches to pay attention to the impact of their behavior on Athletes' psychology in daily life and training management, especially paying more attention to the daily life and academic status of college athletes, to reduce psychological pressure and improve their psychological adaptation level. Scholars Cheng et al. (2013), also pointed out that athletes' perceived coach leadership behavior can significantly predict athletes' competition pressure, and pointed out that sports confidence plays an intermediary role in the relationship between the two. This study however, does not explore which factors play a mediating role in the impact of coach leadership style on Athletes' stress, which needs further research.

## **CONCLUSION**

This study aimed to explore the types of leadership styles of our collegiate bridge coaches, the level of self-perceived stress of collegiate bridge players, and the relationship between the two and was divided into three parts. It was found that there are more democratic leadership styles and less authoritarian leadership styles among college bridge coaches. In the analysis of the stress data, most collegiate bridge athletes had

low to moderate levels of self-perceived stress, and only 17.1% had high levels of stress. In the correlation analysis between the two, self-perceived stress scores were significantly negatively correlated with the democratic leadership style, indicating that the democratic coaching style can dramatically reduce the self-perceived stress of bridge players. There is no significant correlation between self-perceived stress scores and authoritarian leadership style.

## AUTHORS CONTRIBUTIONS

MABMN provided guidance on the framework and overall idea of the article. WZW designed, studied, conducted, and wrote the manuscript, ZN provided guidance on the design aspect of the idea, PJ helped with the research on the specialised areas of the bridge project, CYQ put in efforts during the data collection process, HMJ carried out the data analysis, SN contributed to the translation process, and MIBS contributed to the translation process.

## CONFLICT OF INTREST

All authors have no conflicts of interest.

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