Self-esteem, self-control, and life satisfaction among amateur boxers

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A Study Design
B Data Collection
C Statistical Analysis
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E Funds Collection

Xin Chen [1,4ABCDE], **Nan Qiu** [2CDE], **Chao Chen** [3BD], **Dexin Wang** [3DE], **Guodong Zhang** [4BE], **Liang Zhai** [5CD]

[1] Department of Sport and Health Sciences, Technical University of Munich, Munich, Germany

[2] General and Experimental Psychology, Department of Psychology, Ludwig-Maximilians-Universität München, Munich, Germany

[3] Shanghai University of Sport, Shanghai, China

[4] College of Physical Education, Institute of Sport Science, Southwest University, Chongqing, China

Abstract

Background and Study Aim:	Life satisfaction refers to a stable and generalized cognitive evaluation of an individual's overall living conditions or major aspects of life and is an important indicator for measuring the quality of personal life and an indicator of subjective well-being. The purposes of the present study are knowledge about two issues: first, the relationship between self-esteem, self-control, and life satisfaction; second, whether self-control mediates the relationship between self-esteem and life satisfaction.
Material and Methods:	The participants were 231 amateur boxers, between age range of 18 to 32 years, who were attending different clubs/teams in China. Data were collected by using Self-control Scale, Rosenberg Self-esteem Scale, and The Satisfaction with Life Scale.
Results:	First, self-esteem and self-control are positively correlated with life satisfaction. Second, self-esteem was positively correlated with self-control. Finally, amateur boxers' self-control mediates self-esteem and life satisfaction, indicating that self-esteem predicted life satisfaction not only directly but also indirectly through self-control.
Conclusions:	Therefore, in the future, we can start from helping amateur boxer's improve self-esteem and self-control to improve their life satisfaction.
Keywords:	mediating effect • mental health • Rosenberg Self-esteem Scale • well-being
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Author's address:	Xin Chen, Department of Sport and Health Sciences, Technical University of Munich, Georg-Brauchle-Ring Str. 60/62, 80992 Munich, Germany; e-mail: ge24yix@mytum.de

INTRODUCTION

Life satisfaction refers to a stable and generalized cognitive evaluation of an individual's overall living conditions or major aspects of life [1], and is an important indicator for measuring the quality of personal life and an indicator of subjective well-being [2]. At present, life satisfaction is one of the most common concerns in many mental health problems, and its production and development mechanisms and influencing factors have been widely studied by researchers [3-5]. To athletes, improving life satisfaction is a crucial topic, which can help promote their physical and mental health [6]. Previous studies have shown that long-term high-intensity training load and competition pressure decrease the level of life satisfaction in athletes [7]. Although much research has explored life satisfaction in athletes [8-10], there is a lack of research on life satisfaction in amateur boxers. This study focused on boxers, which are arguably a marginalized group [11, 12]. There has been a lack of attention to amateur boxers' strategies for coping with mental health problems such as low life satisfaction. Increasing life satisfaction can effectively promote individual health [13]. Therefore, it is necessary to explore the factors that affect life satisfaction in amateur boxers, and their associated mechanisms, to provide amateur boxers with better life satisfaction.

As a basic psychological need and psychological resource, self-esteem can provide individuals with the psychological flexibility to help them buffer anxiety, help them to make their own decisions, and enable them to obtain more social support [14]. In terms of individual factors, studies on adults show that self-esteem is one of the most reliable predictors of life satisfaction [15, 16], and has the highest correlation of all predictors of life satisfaction [17, 18]. Numerous studies have also confirmed the close positive relationship between self-esteem and life satisfaction [19-21], and this has also been confirmed in different groups, which can be used as an important indicator to predict individual life satisfaction [22-24]. This shows that individuals with high levels of self-esteem also have relatively high life satisfaction. Based on the above studies, it is particularly important to explore the relationship between self-esteem and amateur boxers' life satisfaction, so that we can further understand amateur boxers' intrinsic psychological characteristics.

Both self-control and self-esteem are important aspects of the self. Good self-esteem is conducive to improving self-control. Individuals with low self-esteem generally have a negative evaluation of themselves, think that they are inferior to others, often lack self-confidence in handling life events, tend to avoid and rely on behaviors, and have weak self-control [25]. Most studies show that people with high levels of self-control exhibit higher self-esteem than those with low levels of self-control [26, 27]. Self-control might also contribute to various types of positive outcomes that act as indicators of self-esteem, such as better academic grades [28], better psychological adjustment [26], and better interpersonal relationships [29]. Past research has found that self-esteem can significantly positively predict self-control, and has proven that self-esteem is one of the most reliable and powerful predictors of self-control [30-32]. This shows that self-esteem is closely related to self-control and may have a direct impact on self-control. Therefore, this study further explores the relationship between amateur boxers' self-esteem and self-control.

Self-control refers to an individuals' ability to change or suppress habitual, spontaneous, impulsive, or instinctual responses when faced with a temptation that conflicts with social norms or long-term interests, which allows them to forgo immediate benefits, and conform to social norms or engage in more meaningful behavior aimed at achieving their goals [33]. Some researchers have found that individuals with high self-control have stronger adaptability, and can achieve higher interpersonal satisfaction and life satisfaction [34]. Many studies have shown that self-control has a significant positive correlation with student satisfaction, and self-control has a strong positive predictive effect on life satisfaction [35-37]. In contrast, some scholars contend that too much self-control (defined as very high levels of self-control) may result in less rather than more life satisfaction [38, 39]. In addition, past research shows that self-control mediated the relationship between other psychological traits and life satisfaction among different groups [40, 41]. The above analysis shows that the three variables of self-esteem, self-control, and life satisfaction are indirectly related.

The purposes of the present study are knowledge about two issues: first, the relationship between self-esteem, self-control and life satisfaction;

second, whether self-control mediates the relationship between self-esteem and life satisfaction. Based on the literature, the present study proposed the following hypotheses: (H1) self-esteem was positively correlated with life satisfaction; and (H2) self-esteem was positively correlated with self-control; and (H3) self-control was positively correlated with life satisfaction, self-control mediates the relationship between self-esteem and life satisfaction.

MATERIAL AND METHODS

Sample

The sample comprised amateur boxers from China indifferent types of individual and team. In a cross-sectional study, a total of 250 questionnaires were distributed, and a total of 231valid ones were returned, a response rate of 92%. Among the participants: n = 144 were male (62%; *n* = 87 were female (38%). Their average age was *M* = 20.28 years (*SD* = 2.60, ages around 18 to 32).

Procedure

A mediation model was used for the examining the direct/indirect relationship between self-esteem and life satisfaction among Chinese amateur boxers (Figure 1).

All participants were invited to complete an anonymous online survey, which took approximately 20 min to complete. Participants were approached by the researchers, with the support of the participating sporting codes, consistent with the approved research ethics procedures. The first page of the survey included informed consent information, including the voluntary nature of participation. This first page of the survey stated that consent was inferred based on the provision of data. Participants were reminded of any missing items prior to progressing to the next page, resulting in no missing outcome data. To prevent both exercise and order effects, athletes completed the questionnaires after the training. Participants were provided with individual access to a tablet or phone to complete the survey. This study adopted cluster sampling and selected amateur boxers. Data collection occurred locally, at each of the participant clubs/ teams.

The research was approved by the human research ethics committee at Southwest University. All participants have signed an informed consent prior to their inclusion in our experiments. The study was designed in accordance with the tenets of the Declaration of Helsinki.

Measures
Rosenberg self-esteem scale

The Rosenberg Self-Esteem Scale was used to measure self-esteem [42]. Five positively worded items out of the original ten items were used in this study (e.g., "I can do things like most people do," "I do often feel useless.") given the scale's high validity, as demonstrated in previous studies [43, 44]. Items for the self-esteem scale range from 1= strongly disagree to 4 = strongly agree. A CFA (Confirmatory Factor Analysis) confirmed the one-dimensionality of the scale: $\chi2$ = 22.58, *df* = 17, $\chi2/df$ = 1.33, RMSEA (Root Mean Square Error of Approximation) = 0.03, IFI (Incremental Fit Index) = 0.994, NFI (Normed
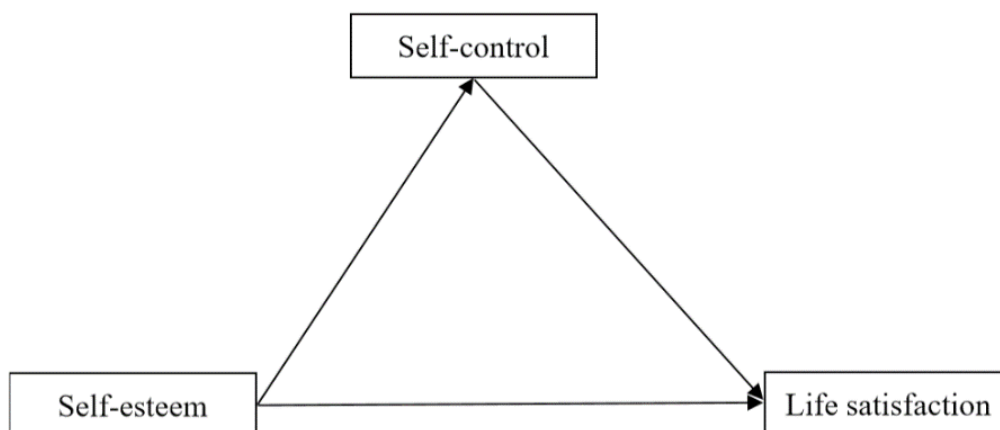

Figure 1. The proposed a mediation model.

Fit Index) = 0.991, CFI (Comparative Fit Index) = 0.994. The factor loadings of the items ranged between a = 0.44 and a = 0.70. The internal consistency of the questionnaire was good (α = 0.78).

Self-control Scale

Self-control was measured by a 19-items (SCS) [26], five-point Likert scale questionnaire, ranging from "1 = not at all" to "5 = very much" and which reflect the five higher-order domains impulsive control, work or study performance, healthy habit, moderation entertainment and resist the temptation; higher scores indicate a better self-control (item example: "I will do things that bring happiness to myself but are harmful to myself." "Many things I do are impulse."). A CFA (Confirmatory Factor Analysis) confirmed the one-dimensionality of the scale: $\chi2$ = 6.19, df = 3, $\chi2/df$ = 2.06, RMSEA (Root Mean Square Error of Approximation) = 0.068, IFI (Incremental Fit Index) = 0.989, NFI (Normed Fit Index) = 0.979, CFI (Comparative Fit Index) = 0.989. The factor loadings of the items ranged from a = 0.47 to a = 0.78. The internal consistency of the questionnaire was good (α = 0.83). In the current study, we use the Chinese version Self-Control Scale, which was revised by Tan and Guo [45].

The satisfaction with life scale

Life satisfaction was assessed using the Satisfaction with Life Scale (SWLS) [46]. The SWLS included five items such as "My living conditions are fine," and "If I could live again, I would basically not make any changes." Participants were asked to indicate their agreement on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). A CFA (Confirmatory Factor Analysis) confirmed the one-dimensionality of the scale (CFA): $\chi2$ = 9.48, df=5, $\chi2/df$ = 1.90, RMSEA (Root Mean Square Error of Approximation) = 0.049, IFI (Incremental Fit Index) = 0.984, NFI (Normed Fit Index)= 0.967, CFI (Comparative Fit Index) = 0.984. The factor loadings of the items ranged from a = 0.54 to a = 0.80. In the current study, the reliability of this scale was 0.69.

In this study, Structural equation modeling (SEM) was used to analyze the relationships among the variables with self-esteem and life satisfaction as the exogenous ("independent") variable. Domains impulsive control, work or study performance, healthy habit, moderation entertainment and resist the temptation were observational variables in the model, life satisfaction was latent variable, and age was a control variable in the model. According to the testing procedure of mediating effects [47, 48], the direct effect of self-esteem on life satisfaction was to be tested first, followed by the fitness of the model and the significance of each path coefficient after adding in the mediating variable.

Statistical analysis

This study used SPSS 22.0 for statistical analysis (including descriptive statistical analysis and correlation analysis), and Amos 24.0 for establishing the structural model.

Moreover, Following the two-step procedure recommended by Gerbing and Anderson [49], this study tested the measurement model before construction [50]. Before establishing the structural model, we conducted a confirmatory factor analysis to assess the goodness of fit of the measurement model with Amos 24.0 [51, 52]. The default estimation of maximum likelihood method was used.

RESULTS

Preliminary analysis

First, amateur boxer's self-esteem was positively correlated with life satisfaction, and self-control was positively correlated with life satisfaction. Moreover, amateur boxers' self-esteem was positively correlated with self-control (Table 1). Therefore, in this study, the significant correlations between the variables provided a basis for subsequent testing of mediating effects. Therefore, hypotheses H1, H2, and H3 were confirmed.

Overall model analysis

Self-control was placed as a mediating variable between self-esteem and life satisfaction in amateur boxers and the fitness results were as follows: $\chi2$=66.64, df=45, $\chi2/df$ =1.48, RMSEA (Root Mean Square Error of Approximation) = 0.046, IFI (Incremental Fit Index) =0.966, NFI (Normed Fit Index) = 0.903, CFI (Comparative Fit Index) = 0.965 (Figure 2).

The path coefficients between self-esteem and self-control (b = 0.57, p<0.001), self-control and life satisfaction (b = 0.66, p<0.01), self-esteem and life satisfaction (b = 0.49, p<0.05), and age and self-esteem (b = 0.02, p<0.05), were

Table 1. Descriptive statistics for study variables (n = 231).

Variable	M	SD	1	2	3	4	5	6	7
1.Gender	1.38	0.49	-						
2.Age	20.28	2.60	.11	-					
3.Competitive level	2.62	0.81	−.21*	−.42***	-				
4.Numberof years of exercise	6.07	2.90	.15*	.70***	−.47***	-			
5.Self-esteem	2.52	0.36	−.09	.15*	.03	.07	-		
6.Self-control	3.44	0.51	−.06	.13	−.06	.03	.41***	-	
7. Life satisfaction	2.84	0.79	−.06	.06	.01	.07	.28***	.23***	-

Note: Statistically significant: * $p<0.05$, ** $p<0.01$, and *** $p<0.001$.

significant. Therefore, the results indicate that self-control had a partial mediating effect on the relationship between self-esteem and life satisfaction among amateur boxers, thus confirming hypothesis H3 of this study.

DISCUSSION

This study found a significant positive correlation between self-esteem and life satisfaction, that is, individuals with stronger self-esteem had higher life satisfaction, which is consistent with previous conclusions [19, 20, 23]. These results support research hypothesis H1. Self-esteem is a protective factor that has a positive impact on life satisfaction. Self-esteem is a basic and universal human need. People pursue high self-esteem and strive to protect their self-esteem from threats or shocks. For athletes, the stronger their self-esteem, the better their performance [53], so the importance

of athletes' self-esteem cannot be ignored [54]. Moreover, most studies have demonstrated that self-esteem has a significant positive predictive effect on life satisfaction in different groups [22, 24]. Based on the proven connection between the two, this study constructed and tested a mediating model to explore the effect of self-esteem on life satisfaction. The above results are significant for understanding the complexity and conditions of the role of boxing athletes' self-esteem in their life satisfaction, and the relevance of interventions to improve life satisfaction.

This study introduced self-control to explore the specific mechanism of self-esteem affecting life satisfaction. The results showed that self-control had a significant positive impact on life satisfaction, which is consistent with previous research results [35-37]. At the same time, self-esteem and self-control were significantly positively correlated, which is consistent with
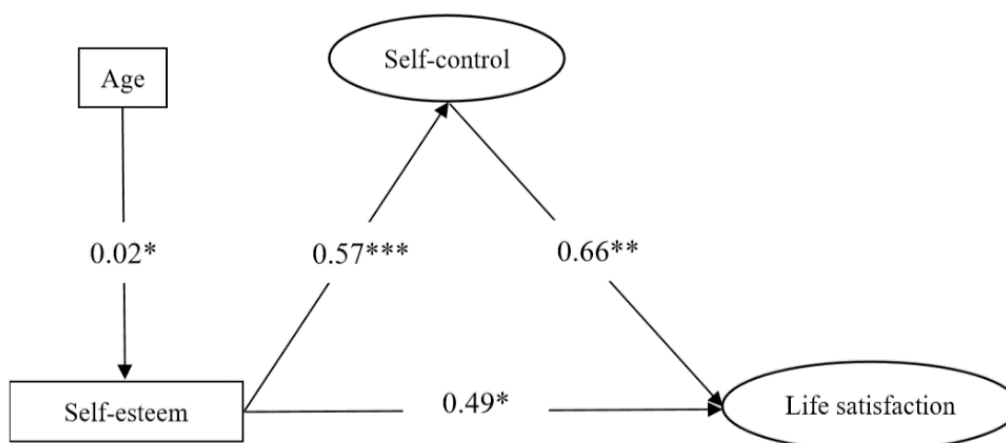

Figure 2. Structural equation modeling of direct and mediating effects on life satisfaction among amateur boxers (statistically significant: * $p<0.05$, ** $p<0.01$, and *** $p<0.001$).

previous conclusions [30-32]. These results support research hypotheses H2 and H3. More importantly, this study found that self-control played a "black-box theory" role in the relationship between self-esteem and life satisfaction, that is, it played a full mediating role in the process of self-esteem promoting life satisfaction. In other words, the impact of self-esteem on the life satisfaction of amateur boxers occurs directly on the one hand, and on the other hand, indirectly through its effect on self-control; that is, self-control is a "bridge" between the two by its relationships with both self-esteem and life satisfaction. Therefore, self-control is an important internal mechanism by which self-esteem affects amateur boxers' life satisfaction. This study reminds us that the impact of self-esteem on life satisfaction is complex. Self-esteem not only directly affects life satisfaction, but also indirectly affects life satisfaction through other channels. At the same time, the discovery of this intermediary role can help provide a basis for improving amateur boxers' life satisfaction.

This study clarifies the relationship between self-esteem and life satisfaction, and reveals the internal mechanism between them, which has theoretical and practical value. However, there are some shortcomings in this study: 1 This study uses a cross-sectional study design, making it difficult to make accurate causal inferences. In the future, the findings of this study can be further tested through experimental research and follow-up design. 2. This study only focused on the relationship between self-esteem, self-control, and life satisfaction, and failed to cover other factors and mediating variables that may affect the relationship between the two. These need to be further studied in the future. 3. The shortcomings of this study are that the sample was selected as amateur boxers, and the ecological validity was not enough to fully prove the unique role of self-esteem. However, it is theoretically feasible and can be repeatedly verified.

CONCLUSIONS

First, self-esteem and self-control are positively correlated with life satisfaction. Second, self-esteem was positively correlated with self-control. Finally, amateur boxers' self-control mediates self-esteem and life satisfaction, indicating that self-esteem predict life satisfaction not only directly but also indirectly through self-control. Therefore, in the future, we can start from helping amateur boxer's improve self-esteem and self-control to improve their life satisfaction.

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