DOI: 10.22122/jrrs.v16i.3424 Published by Vesnu Publications

The Effect of Childhood Adverse Experiences on Change in Outlook and Hardiness of Athletes

Setareh Deinali[1], Rokhsareh Badami[2], Zohreh Meshkati[2], Sahar Faeghi[3]

Original Article

Abstract

Introduction: In professional sports, increasing desires to win and achieve high-level goals are common causes for competitive stress. However, some players seem to manage stressful situations better than others. The purpose in this study is to determine the effect of childhood adverse experiences on change in outlook and hardiness of athletes.

Materials and Methods: The participants in this study included 201 (99 girls, 112 boys) athletes aged 18-22 years old from different sports in Isfahan, Iran, who participated in national competitions. To collect the data, the Adverse Childhood Experiences (ACE) Questionnaire, the Changes in Outlook Questionnaire (CiOQ), and short hardiness scale were used. The direct and indirect effects of the variables were examined to investigate the mediating role.

Results: The results showed that adverse childhood experiences affect positive (P = 0.048) and negative (P = 0.001) outlook on life and positive (P = 0.021) and negative (P = 0.003) outlook affect hardiness. Adverse childhood experiences did not have a direct effect on hardiness (P < 0.05), but through mediation, the effect was significant (P = 0.02).

Conclusion: Adverse childhood experiences affect the athletes' outlook, with positive and negative outlook increasing and decreasing hardiness, respectively.

Keywords: Childhood experience, Hardiness, Outlook, Athletes

Citation: Deinali S, Badami R, Meshkati Z, Faeghi S. **The Effect of Childhood Adverse Experiences on Change in Outlook and Hardiness of Athletes.** J Res Rehabil Sci 2019; 15(4): 208-15.

Received: 23.07.2020 Accepted: 06.09.2020 Published: 06.10.2020

Introduction

The field of sports represents a natural laboratory for studying how people perform in very difficult conditions. A distinctive feature of sports elites is the use of psychological characteristics to withstand stressful situations (1). Hardiness is one of the most important personality traits of sports elites to cope with stress (2), which is referred to as the ability to cope with pressures and difficulties, overcoming obstacles and failures, focusing on the goals, maintaining and gaining tranquility after failure, and consistent performance at high levels of competition (3). Hardiness consists of three components: stability (commitment), control, and confidence (struggle) (2). Stability means that the person is deeply involved in doing something and does not give up even in stressful situations. The control component refers to the belief that effort is more important than chance, and that effort can influence what is going to happen, and finally struggle is defined as accepting life changes and using them for further change (2). A person who believes this sees positive or negative changes that require readjustment as an opportunity for further learning and transformation, rather than a threat to their own safety and well-being (4).

One of the important questions that researchers seek to answer is how and under what conditions do personality traits, such as hardiness, evolve? Among many factors that influence the formation and development of personality traits, the role of

1- PhD Student, Department of Physical Education and Sports Sciences, School of Physical Education and Sports Sciences, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran
2- Associate Professor, Department of Physical Education and Sports Sciences, School of Physical Education and Sports Sciences, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran
3- PhD in Cultural Sociology, Department of Physical Education and Sports Sciences, School of Physical Education and Sports Sciences, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran
Corresponding Author: Rokhsareh Badami, Email: rokhsareh.badami@gmail.com

childhood experiences seems to be important (5). Freud considered the role of childhood experiences in the formation of personality very important and believed that the personality of each person is formed in the first five years of life (6). Schultz and Schultz agreed with Freud that the first few years of childhood play a major role in the formation of adult personality, but disagreed with him on how character forms (6). Adler also believed that the memories of the first life could be effective in creating a hardworking personality (7). According to him, all human beings feel inferior since birth because they need others. This feeling of inferiority is more prevalent in children with physical disabilities who find themselves unable to cope with life events, the pampered, as well as children who have been neglected by their parents due to divorce, poverty, or other factors (7). According to Adler, some of these people go to extremes to compensate for their feelings of inferiority. Therefore, they constantly strive to excel (7).

In the field of sports, Fletcher and Sarkar reported that experiencing difficult conditions is an important factor in improving athletic performance (1). In fact, most of the participants in their study argued that if they had not experienced some stressors at certain times, they would not have won a gold medal. Additionally, in interviews with Olympic athletes, Hardy et al. unexpectedly realized that many champions had endured hardships in their lifetime, and these hardships had been a factor in their development (8). In other words, most of the athletes interviewed by Hardy et al. noted that the psychological trauma of poverty, parental divorce, and the death of a loved one had hardened them like steel and increased their determination to achieve the goal (8). Accordingly, Collins and MacNamara speculated that overcoming early life struggles was a catalyst for progress. According to them, the knowledge and power that athletes gained from the difficulties of life, definitely affected their subsequent progress and performance in sports (9). It is interesting to note that athletes who have experienced hardship work harder and can evolve as much as they have experienced hardships (10,11).

Some studies have suggested that the adverse childhood experiences (ACEs) lead to the formation of antisocial personality (12) and impair comfort and physical and psychosocial health in later life (13,14). According to Tedeschi and Calhoun, change due to the ACEs requires increased appreciation for life, more meaningful relationships, a greater sense of self-confidence, a change in priorities, or a richer existential and spiritual awareness (15). Accordingly, it seems that ACEs develop positive personality traits when they create a positive outlook (15). However, most of the studies on evolution following traumatic events in athletes have been qualitative and by interviewing athletes, have explored the factors leading to psychological changes following ACEs (1). Based on a comprehensive search, no study was found to quantitatively assess the relationship between ACEs and the hardiness personality trait. Quantitative studies are more generalizable than qualitative ones due to having more samples. Accordingly, the purpose of this study is to assess the relationship between ACEs and hardiness, taking into account the mediating role of change in outlook. Therefore, the main hypotheses of the study were as follows: ACEs affect outlook on life and outlook on life affects hardiness, in addition, ACEs may indirectly affect hardiness through changes in outlook on life.

Materials and Methods

This study was a correlational-descriptive study performed on samples consisting of 201 people (99 girls and 112 boys) from among athletes of different sports (volleyball, basketball, football, martial arts, track and field, and swimming) in Isfahan, Iran, with an age range of 18 to 22 years. The participants were randomly selected from athletes competing at the national level. After the approval of the project in the Research Council of the Isfahan (Khorasgan) Branch, Islamic Azad University with the registration number 23821402941010 and obtaining the necessary permits, the questionnaire was given to the participants. After explaining the study objective and obtaining the consent form, the researcher asked the athletes to review the questionnaires and express their opinion by marking one of the options.

The following are the data collection tools.

Adverse Childhood Experiences (ACEs) Questionnaire: This scale was designed by Murphy et al. to assess children's experiences of child abuse, child neglect, and problems at home (such as parental addiction). The ACEs questionnaire consists of 10 items with yes/no answers. For each yes, a score is assigned. Therefore, the score range varies from zero to 10, with a higher score indicating more adverse experiences (16). The validity and reliability of this tool have been confirmed in Iran and abroad (17).

Changes in Outlook Following Disaster Questionnaire: The full form of the Changes in Outlook Questionnaire (CiOQ) was designed by Joseph et al. to assess the change of outlook following

trauma (very shocking events such as spinal cord injury following an accident) or associated with adverse events (such as poverty and parental divorce). The initial form of this scale consists of 26 items, which measures 11 items of positive change and 15 items of negative change on a six-point Likert scale from a score of 1 (strongly disagree) to a score of 6 (strongly agree) (18). To prepare the short form of the scale, Joseph et al. selected 10 items out of 26 items (5 items of positive outlook and 5 items of negative outlook) and examined and verified its validity and reliability (18). The validity and reliability of the tool have also been confirmed in Iran (19).

Short hardiness scale: In order to measure hardiness, the short form of the Bartone's Dispositional Resilience Scale (DRS), the "short hardiness scale" was employed. This scale was invented by Bartone in 1995 (20). The short hardiness scale consists of 15 items about self-assessment of hardiness levels and has three components: "commitment, control, and struggle", with 5 items assigned to each component. The items, their hardiness levels and components are measured on a four-point Likert scale from a score of zero to three. The validity and reliability of this scale have been confirmed in Iran (21,22).

The obtained data were analyzed at descriptive and inferential levels. First, descriptive statistics including mean and standard deviation (SD), minimum and maximum scores of the study variables, and internal consistency (IC) were presented. To test the study hypothesis based on the conceptual model, the structural equations of the model were developed using software. After evaluating the fit indices based on the three types of Absolute, Comparative, and Parsimonious, the direct and indirect effects of the variables for the mediation role was examined. Finally, the data were analyzed in SPSS software (version 24, IBM Corporation, Armonk, NY, USA) and AMOS version 22.

Results

The demographic information of the participants is given in table 1.

Table 1. Demographic characteristics of the participants

Personal characteristics		Value
Gender [n (%)]	Female	99 (49.20)
	Male	112 (50.80)
Type of sport [n (%)]	Volleyball	53 (26.30)
	Basketball	37 (18.40)
	Football	69 (34.30)
	Martial arts	24 (12.00)
	Swimming	18 (0.09)
Age [(mean ± SD) year]	Female	2078 ± 2.00
	Male	21.64 ± 2.00

SD: Standard deviation

The incidence of each adverse experience in the ACEs questionnaire is shown in table 2 alone and in combination with other adverse experiences.

The descriptive findings and IC of the studied variables are presented in table 3.

The findings of table 3 showed a significant correlation between most of the studied variables. The pattern of effect of ACEs on hardiness with respect to the mediating role of the positive outlook and negative outlook is presented in figures 1 and 2, respectively.

The general fit indices of the patterns are presented in table 4.

Table 2. Percentage of incidence of adverse childhood experiences (ACEs)

Type of adverse experience	Percentage of incidence alone	Percentage of incidence in combination with another adverse experience	Percentage of incidence in combination with more than one other adverse experience
Humiliation and insult or fear of corporal punishment	40.0	25.0	35.0
Beating or corporal punishment or injury that leaves physical effects.	30.0	30.0	40.0
Sexual harassment (by an adult or person at least 5 years older)	0	33.4	66.6
Feelings of worthlessness and lack of family love or lack of support of family members for each other	30.8	23.1	46.2
Lack of access to proper food or clothing or lack of parental attention to the child's need for treatment	0	0	100
Parents living apart or divorced	33.4	26.6	40.0
Being beaten by mother or stepmother or threatened by mother or stepmother with a knife or weapon	0	0	100
Living with an alcoholic or someone who uses drugs outside.	10.0	30.0	60.0
Family history of depression, mental disorders, or suicide	43.3	23.4	33.3
Family history of imprisonment	44.4	27.8	27.8

Table 3. Descriptive findings and internal consistency (IC) of the study variables

Study variables	Mean ± SD	Mental hardiness		Confidence		Stability		Control		ACEs		Negative outlook	
		P	r	P	r	P	r	P	r	P	r	P	r
Mental hardiness (score out of 60)	47.09 ± 5.39												
Confidence (score out of 20)	20.31 ±2.61	0.001**	0.561										
Stability (score out of 20)	13.69 ± 2.21	0.001**	0.624	0.001**	0.261								
Control (score out of 20)	12.35 ±2.69	0.001**	0.584	0.002**	0.164	0.001**	0.252						
ACEs (score out of 10)	0.92 ±1.60	0.008**	-0.187	0.339	-0.060	0.452	-0.055	0.227	-0.086				
Negative outlook on life (score out of 30)	11.82 ± 4.32	0.001**	-0.447	0.001**	-0.235	0.001**	-0.232	0.001**	-0.240	0.001**	0.340		
Positive outlook on life (score out of 30)	23.65 ± 4.61	0.004**	0.201	0.032*	0.152	0.001**	0.370	0.002**	0.214	0.027*	-0.156	0.001**	-0.794

SD: Standard deviation; ACEs: Adverse childhood experiences
*P < 0.050, **P < 0.010

Table 4. General fit indices in the pattern of the effect of adverse childhood experiences (ACEs) on hardiness with respect to the mediating role of positive and negative outlooks

	Index	Desired significance level	Models	Value in the model	P	Status in the proposed model
Absolute	χ^2	Above 0.05	Positive outlook	335.944	0.001	Desirable considering other indices
			Negative outlook	351.625	0.001	Desirable considering other indices
	Degree of freedom	-	Positive outlook	126	-	-
			Negative outlook	126	-	-
Comparative	Tucker-Lewis	Above or close to 0.9	Positive outlook	0.826	-	Desirable
			Negative outlook	0.838	-	Desirable
	CFI		Positive outlook	0.884	-	Desirable
			Negative outlook	0.885	-	Desirable
Parsimonious	PCFI	Above 0.5	Positive outlook	0.638	-	Desirable
			Negative outlook	0.641	-	Desirable
	RMSEA	Below 0.1	Positive outlook	0.078	-	Desirable
			Negative outlook	0.079	-	Desirable
	Normalized χ^2	Below 5	Positive outlook	2.670	-	Desirable
			Negative outlook	2.810	-	Desirable

CFI: Comparative Fit Index; PCFI: Parsimonious Comparative Fit Index; RMSEA: Root Mean Squared Error of Approximation

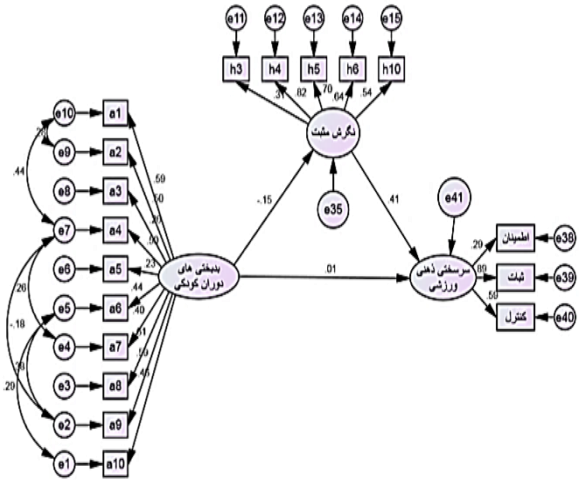

Figure 1. Pattern of effect of adverse childhood experiences (ACEs) on hardiness with respect to the mediating role of the positive outlook

The relative χ^2 index was 2.670 and 2.810 in the positive outlook mediation model and in the negative mediation model, respectively, indicating that the model was in a good position. Moreover, the value of the comparative indices of the Tucker-Lewis, Comparative Fit Index (CFI), and Root Mean Squared Error of Approximation (RMSEA) indicated that generally, the patterns were of a somewhat appropriate fitting. The Holter index in both models also showed that the sample size was sufficient to examine the model fit.

Based on the data in table 5, the standard error in the main indices in the maximum likelihood method was less than the bootstrapping method. The estimated standard value for all main indices in the lower and upper ranges estimated for these variables in the bootstrapping method showed that the estimated indices and their significant difference with zero by the maximum likelihood method had the necessary accuracy. The results of the direct and indirect effects of ACEs on hardiness are presented in table 6.

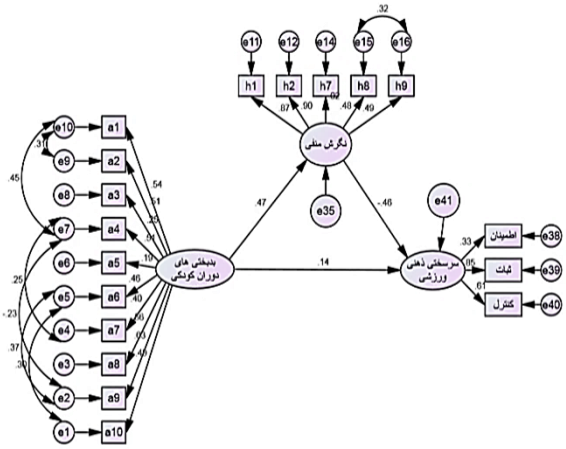

Figure 2. Pattern of effect of adverse childhood experiences (ACEs) on hardiness with respect to the mediating role of the negative outlook

Based on the data presented in table 6, in the first part, which is related to the positive outlook mediating model, the direct effect of ACEs on hardiness was 0.014 (P = 0.963), which is more than 0.05 and 0 between the upper and lower bounds, which expresses the insignificance of this effect. As a result, the direct effect of ACEs on hardiness was not significant. The indirect effect of ACEs on hardiness was -0.063 (P = 0.044), and zero was not between the upper and lower bounds, which indicates the significance of this indirect effect.

Table 5. Estimates obtained by the maximum likelihood and bootstrapping methods for the main indices in the patterns of effect of adverse childhood experiences (ACEs) on hardiness with respect to the mediating role of positive and negative outlooks

Pattern	Parameter	Maximum likelihood					bootstrapping			
		Standard estimate	P	Non-standard estimate	Standard error	Critical ratio	Mean	Standard error	Lower bound	Upper bound
Positive outlook	Adverse experiences → Positive outlook	-0.154	0.048	-0.407	0.089	-1.990	-0.130	0.271	-0.416	-0.004
	Positive outlook → Hardiness	0.407	0.021	0.886	0.100	2.316	0.415	0.383	0.181	0.600
	Adverse experiences → Hardiness	0.014	0.873	0.082	0.097	0.160	0.008	0.516	-0.312	0.152
Negative outlook	Negative outlook	0.466	0.001	3.915	0.922	4.240	0.431	0.135	0.190	0.697
	Negative outlook → Hardiness	-0.462	0.003	-0.335	0.134	-2.970	-0.437	0.113	-0.834	-0.250
	Adverse experiences → Hardiness	0.143	0.217	0.872	0.115	1.240	0.122	0.215	-0.107	0.362

Table 6. Direct and indirect effects of adverse childhood experiences (ACEs) on hardiness

Mediating	Effects	Standard estimate	P	Lower bound	Upper bound	Non-standard estimate	P
Positive outlook	Direct	0.014	0.963	0.312-	0.052	0.082	0.906
	Indirect	0.063-	0.044	0.209-	0.020-	0.361-	0.019
Negative outlook	Direct	0.143	0.229	0.107-	0.362	0.872	0.113
	Indirect	0.215-	0.002	0.458-	0.105-	1.310-	0.003

Thus, the indirect effect of ACEs on mental hardiness through a positive outlook on life was significant. Given the insignificant direct effect in this model, the positive outlook on life was a complete mediator of the relationship between ACEs and hardiness. In other words, adverse life experiences affect people's positive outlook on life and hardiness changes as attitudes change.

In the second part of table 6, which examined the mediating role of the negative outlook, the direct effect of ACEs on hardiness was 0.143 (P = 0.229), which was more than 0.05 and zero laid between its upper and lower bounds, suggesting the insignificance of this effect. As a result, the direct effect of ACEs on hardiness was not significant. The indirect effects of ACEs on sports mental hardiness was -0.215 (P = 0.002) and zero was not between the upper and lower bounds, indicated the significance of this indirect effect.

Accordingly, the indirect effect of ACEs on hardiness through a negative outlook on life was significant. Given that the direct effect in this model was not significant, the negative outlook on life was a complete mediator of the relationship between ACEs and hardiness. In other words, ACEs affect people's negative outlook on life, and hardiness changes as outlook changes.

Discussion

The aim of this study was to investigate the structural pattern between ACEs with changes in outlook on life and hardiness. There was evidence of a mediated relationship between ACEs (change in outlook on life) and hardiness. Most previous studies examining athletes' childhood experiences were performed in a qualitative manner (23,24), and no study was found that described athletes' experiences quantitatively. It seems that in order to gain a deeper insight in this regard, it is necessary to perform further investigations on different levels of competition, especially the Olympics, which requires a lot of effort to achieve. Based on the descriptive results of the present study, the average rate of ACEs of the athletes competing at the national level ranging from 0 to 10 was obtained as 0.92. This indicates the very low ACEs of athletes.

The results of the present study suggested that ACEs are associated with positive and negative outlooks, increasing and decreasing hardiness by creating a positive outlook and a negative outlook, respectively. No study was found to examine the effect of childhood experiences on hardiness directly or indirectly (mediating), but some studies have shown that with change in phenotype, ACEs cause the formation of anti-social personality (12). This finding implies that experiences affect personality by changes in phenotype.

Increased hardiness following ACEs was in line with the famous claim of Nietzsche that "What does not kill me makes me stronger" (25) and with Tennen and Affleck's view stating that in Western culture, people become wiser following psychological trauma and their lives become more productive and constructive (26). Tedeschi and Calhoun used the term evolution following trauma to understand positive change. When they were clinical psychologists, they saw these kinds of changes in patients who coped with stressful life events. They also found that people often experience positive changes since the onset of traumatic events. For example, people felt better when communicating with those around them and enjoyed more trivial matters in life. According to Tedeschi and Calhoun, positive changes in behavior and beliefs can occur in at least five ways: "Improving relationships with others, identifying new possibilities for one's life, greater understanding of personal development, psychological development, and greater knowledge on life" (15).

According to the Valuing Theory of Joseph et al., psychological damage can cause changes in meaning, personality schemas, and relationships. According to them, traumatic events may cause the individual to feel that he can cope with the conflicts of the social environment and define his relationships and act independently and freely in accordance with his values and without fear of social disapproval (27).

According to McAdams, life events can change personality. According to him, personality is defined in three parallel levels: "propositional traits, personal issues (life goals and priorities), and life stories." He argued that while propositional traits are constant

throughout adulthood, personal issues are sensitive to change due to situational conditions and, as they evolve, play a direct role in life stories (28). Pals and McAdams concluded that modifying one's life story is associated with cognitive and behavioral changes (29).

Limitations

In the present study, the ACEs questionnaire was used to assess ACEs. Although the psychometric properties of this scale have been confirmed in Iran, it is better to design and use questionnaires in accordance with Iranian culture to assess ACEs.

Recommendations

In future studies, it can be instructive to describe the underlying information about the time, repetition, and duration of difficulties experienced by high-level competitive athletes in childhood, during growth, and while engaging in professional sports. It is suggested that in the training courses of professional athletes, with the help of specialized counseling teams, an attempt be made to create a positive outlook on life in people who suffer from ACEs in order to provide them with the ground for formation of a strong personality. It should be noted that although research in this area is new and more extensive studies need to be conducted to provide in-depth insight, it should not be forgotten that development along with adverse events do not mean that athletes are traumatized by coaches and officials for further development. Rather, it is meant to show that where hardships and psychological traumas cause some people to collapse, others use these hardships to further develop. The application of this principle in the training courses of athletes, especially for national, regional, and international competitions, deserves further investigations.

Conclusion

Overall, the results of the present study showed that in order for the ACEs to influence hardiness, a change in outlook on life seems necessary, which if positive, enhances hardiness.

Acknowledgments

The present study was extracted from a PhD dissertation performed at the Isfahan (Khorasgan) Branch, Islamic Azad University with the code 23821402941010. The authors would like to appreciate all the participants who contributed to this study.

Authors' Contribution

Setareh Deinali: Study design and ideation, study executive services, selection and screening of subjects, conducting studies, data analysis, statistical services, attracting funds for the study, manuscript preparation, verification and submission of article, correspondence; Rokhsareh Badami: Study design and ideation, study executive services, selection and screening of subjects, conducting studies, data analysis, manuscript preparation, verification and submission of article, correspondence, Zohreh Meshkati: conducting studies, data analysis, manuscript preparation, verification and submission of article, correspondence, Sahar Faeghi: conducting studies, data analysis, manuscript preparation, verification and submission of article, correspondence.

Funding

The present study was extracted from a PhD dissertation performed at the Isfahan (Khorasgan) Branch, Islamic Azad University with the approval code and ethics code 23821402941010, which was accomplished without financial support. The Isfahan (Khorasgan) Branch, Islamic Azad University did not comment on data collection, analysis, and reporting, manuscript preparation and final approval of the article for publication.

Conflict of Interest

None.

References

1. Fletcher D, Sarkar M. A grounded theory of psychological resilience in Olympic champions. Psychol Sport Exerc 2012; 13: 669-78.
2. Kobasa SC. Stressful life events, personality, and health: An inquiry into hardiness. J Pers Soc Psychol 1979; 37(1): 1-11.
3. Jones G, Hanton S, Connaughton D. What is this thing called mental toughness? An investigation of elite sport performers. J Appl Sport Psychol 2002; 14: 205-18.
4. Kobasa SC. The hardy personality: Toward a social psychology of stress and health. Social Psychology of Health and Illness 1982; 4: 3-32.
5. Kobasa SC, Maddi SR, Kahn S. Hardiness and health: A prospective study. Journal of Personality and Social Psychology 1982; 42(1): 168-77.
6. Schultz SE, Schultz DP. Theories of Personality. 9th ed. Belmont, CA: Wadsworth Publishing; 2009.

7. Adler S. Personality and work behaviour: Exploring the linkages. Appl Psychol 1996; 45(3): 207-24.
8. Hardy L, Barlow M, Evans L, Rees T, Woodman T, Warr C. Great British medalists: Psychosocial biographies of Super-Elite and Elite athletes from Olympic sports. Prog Brain Res 2017; 232: 1-119.
9. Collins D, MacNamara A. The rocky road to the top: why talent needs trauma. Sports Med 2012; 42(11): 907-14.
10. Gucciardi DF. The psychosocial development of world-class athletes: Additional considerations for understanding the whole person and salience of adversity. Prog Brain Res 2017; 232: 127-32.
11. Howle TC, Eklund RC. On elite and super-elite Great British athletes: Some theoretical implications from findings. Prog Brain Res 2017; 232: 121-5.
12. Douglas K, Chan G, Gelernter J, Arias AJ, Anton RF, Poling J, et al. 5-HTTLPR as a potential moderator of the effects of adverse childhood experiences on risk of antisocial personality disorder. Psychiatr Genet 2011; 21(5): 240-8.
13. Chapman DP, Whitfield CL, Felitti VJ, Dube SR, Edwards VJ, Anda RF. Adverse childhood experiences and the risk of depressive disorders in adulthood. J Affect Disord 2004; 82(2): 217-25.
14. Danese A, Moffitt TE, Harrington H, Milne BJ, Polanczyk G, Pariante CM, et al. Adverse childhood experiences and adult risk factors for age-related disease: depression, inflammation, and clustering of metabolic risk markers. Arch Pediatr Adolesc Med 2009; 163(12): 1135-43.
15. Tedeschi RG, Calhoun LG. Posttraumatic Growth: Conceptual foundations and empirical evidence. Psychol Inq 2004; 15(1): 1-18.
16. Murphy A, Steele M, Dube SR, Bate J, Bonuck K, Meissner P, et al. Adverse Childhood Experiences (ACEs) questionnaire and Adult Attachment Interview (AAI): Implications for parent child relationships. Child Abuse Negl 2014; 38(2): 224-33.
17. Dineli S, Badami R, Meshkati Z, Faeghi S. Psychometric properties of the Modified Persian Version of Adverse Childhood Experience Questionnaire for Athletes. J Res Rehabil Sci 2020; 16: 87-94. [In Persian].
18. Joseph S, Williams R, Yule W. Changes in outlook following disaster: The preliminary development of a measure to assess positive and negative responses. J Trauma Stress 1993; 6(2): 271-9.
19. Badami R. Psychometric properties of the Persian Version of Modified Short Form of Changes in Outlook Questionnaire Following Disaster for Injured Athletes. J Res Rehabil Sci 2019; 15(4): 228-34. [In Persian].
20. Bartone P. A Short Hardiness Scale (updated). Proceedings of 103th Annual Convention of the American Psychological Association; 1995 Aug 11-15; New York, NY, USA.
21. Babaei Z, Badami R. Relationship between psychological hardiness with sport performance in iran basketball primer league. Journal of Sports Psychology 2014; 14: 1031-40. [In Persian].
22. Besharat MA. Reliability, validity and factorial analysis of the Hardiness Scale. Harakat 2008; (35): 31-46. [In Persian].
23. Howells K, Sarkar M, Fletcher D. Can athletes benefit from difficulty? A systematic review of growth following adversity in competitive sport. Prog Brain Res 2017; 234: 117-59.
24. Wright K, McHugh TL, Mosewich A. Recreational athletes' experiences of adversity. Journal of Exercise, Movement, and Sport 2019; 51(1): 171.
25. Nietzsche F. Twilight of the Idols. Oxford, UK: Oxford World's Classics; 1998.
26. Tennen H, Affleck G. Benefit-finding and benefit-reminding. In: Snyder CR, S. J. Lopez SJ, editors. Handbook of positive psychology. Oxford, UK: Oxford University Press; 2002. p. 584-97.
27. Joseph S, Alex Linley P, Shevlin M, Goodfellow B, Butler LD. Assesing positive and negative changes in the aftermath of adversity: A short form of the Changes in Outlook Questionnaire. Journal of Loss and Trauma 2006; 11(1): 85-99.
28. McAdams DP. Can personality change? Levels of stability and growth in personality across the life span. In: Heatherton TF, Weinberger JL, editors. Can personality change?. Washington, DC: American Psychological Association; 1994. p. 299–313.
29. Pals JL, McAdams DP. The Transformed self: A narrative understanding of posttraumatic growth. Psychological Inquiry 2004; 15(1): 65-9.