



Original Article

A Comparative Study of Self-Esteem, Quality of Life, Health, and Physical Satisfaction among Active and Inactive Iranian Elite Athletes After Early Retirement Due to Sports Injuries

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ABSTRACT

Background: Most athletes retire young and severe sports injuries can be considered one of the most important reasons for psychological problems in sports retirees. This study aimed to investigate the impact of early retirement due to sports injuries on the physical condition, quality of life (QOL), health, self-esteem, and body-esteem of both active and inactive Iranian elite athletes.

Methods: This cross-sectional study was conducted on forty elite retired Iranian athletes, primarily from skiing, wrestling, and mountaineering, with an average age of 66.62 ± 4.65 years, height of 166.70 ± 3.66 cm, and weight of 66.15 ± 4.88 kg. The participants were divided into two groups, active ($n=20$) and inactive ($n=20$), based on their current level of sports activity. The Nordic, SF-36, Rosenberg, and Mendelson questionnaires were utilized to determine musculoskeletal pain, quality of life, self-esteem, and body image.

Results: The results indicated that participants in the active group reported a higher quality of life score than those in the inactive group ($P=0.001$). Furthermore, the active group scored significantly higher in terms of body image ($P=0.001$) and self-esteem ($P=0.001$) than the inactive group.

Conclusion: Based on the study's results, it is recommended that sports health and psychology experts pay increased attention to the post-exercise period of elite athletes. Furthermore, it is suggested that elite sports retirees continue to engage in light sports activities even after retiring from professional sports.

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Introduction

Sport has been recognized as a profession, and thus, professional athletes across all sports face various transitions during their careers, one of the most significant being retirement. In the preliminary studies conducted by Kanyon, Chaladri, and Karun in 1990, sports retirement was defined as withdrawal from the sports profession [1].

Retirement in most professions typically occurs between the ages of 60 and 65. However, the retirement age in sports is significantly lower, usually between 25 to 35 years old [2]. This can occur even earlier in the event of severe sports injuries [3, 4]. Transitioning to retirement represents a challenging phase in an athlete's career as they enter a new stage of life post-exercise [5]. Early retirement can lead to unique challenges and adjustments compared to other professions. Athletes, having spent their entire lives training and competing, may have their identities closely tied to their athletic careers. Therefore, retirement can be a significant loss in terms of their sense of self and social support network [6].

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The main reasons for ending a sports career include chronic and acute sports injuries, aging, not being selected for the team, not achieving sports goals, opportunities post-exercise, and significant life changes [7]. In addition to the immediate changes in an athlete's life post-retirement, they should also manage any previous medical or physical problems that may have a lifelong impact. Leaving the high-performance system and support can significantly reduce access to necessary care. Sports injuries, including musculoskeletal injuries, can sideline athletes from training or, in some cases, permanently withdraw them from sports and competitions [8]. As a result, their long-term athletic development may be affected [9], leading to significant personal and social economic consequences [10].

Although retirement is an inevitable part of any professional sport, the unpredictable nature of elite athlete careers often leads to uncertainty regarding the timing of retirement. This uncertainty differs from athletes who retire by choice, when their sports career naturally concludes, or when forced retirement occurs due to injury or selective elimination [11]. Planned retirement is typically associated with fewer adjustment problems, while forced retirement is linked to an increased risk of mental health issues [12]. Retirement imposed on an athlete due to injury or selective elimination is associated with a significant psychological impact due to the lack of an adjustment period.

The lack of an appropriate theoretical framework in early research led researchers to use theoretical frameworks in related fields such as psychology and sociology [13]. Researchers have found that retiring from sports can cause psychological reactions such as identity crises, emotional, social, and economic problems, low self-esteem, and life satisfaction. In contrast, some researchers have found no evidence of stress among retired athletes and suggested that retirement from professional-level sports competitions will bring about positive life changes [14-16]. These factors can have long-term physical and psychological effects that last a lifetime and potentially affect the quality of life (QoL) and life satisfaction [17].

One of the most straightforward ways to measure QOL is through health status measures, where patients are asked to rate different aspects of their lives. The Short-Form 36 or SF-36 is the most commonly used measure in QOL research. It is a generic measure developed and validated in the Medical Outcomes Study to assess important QOL domains relevant to patients suffering from various medical conditions [18]. The SF-36 Health Status is considered a suitable measure of quality of life, as it encompasses 36 questions across nine health concepts, including physical and social functioning, role limitations in physical and emotional aspects, mental health, energy/fatigue, and general perceptions of health and health change [19].

Empirical evidence has demonstrated that severe injuries sustained by former college athletes can adversely impact their ability to engage in daily activities later in life, thereby reducing their health-related QOL [20]. The process of retirement can instigate numerous changes in an athlete's lifestyle and identity, placing

them at a relatively high risk of developing mental health problems [21]. These can manifest as conditions such as anxiety, depression, or post-traumatic stress disorder, significantly impacting QOL of both the athletes and their families [20, 22]

Life satisfaction is generally defined as an individual's contentment with their life. Another perspective defines daily happiness as the meaning attributed to life and feeling good and healthy [23]. Physical activities contribute to the physical and psychological well-being of individuals. Moreover, the release of endorphins and opioids post-exercise can increase the pain threshold and contribute to overall psychological well-being. Ryan et al. reported that engaging in activities at an appropriate skill level can lead to long-term happiness and satisfaction. Therefore, it can be suggested that participation in sports and achieving associated goals and objectives can contribute to an individual's overall life satisfaction [24].

Athletes who are involuntarily forced to retire may experience various challenges and difficulties compared to those who retire voluntarily. Transitioning from an athletic career to retirement is indeed a complex process, as noted by Taylor and Ogilvie in 1994. The decision to continue or discontinue sports after retirement can significantly impact an athlete's adjustment to this transition [25, 26]. This can lead to retired athletes being divided into active and inactive groups, which may further affect their overall well-being and life satisfaction.

A review of previous research reveals that understanding the process of sports retirement and its effects on people's lives after the end of their sports career is still unknown. Exploring sports retirement has been a topic of interest for sports pathology and psychology experts from pioneering studies to the present. However, the difference between this research and previous studies is that it attempts to study psychological factors. In previous studies, the importance of studying the impact of sports injuries on psychological factors and psychological profiles [self-esteem, QOL and health, physical satisfaction] in our country (IRAN) has not been addressed.

Considering the various combinations of potential problems that athletes may face when retiring, it is necessary to study these problems to increase the awareness of athletes and high-performance sports team members. According to the literature review and the researcher's knowledge, no research has been done to investigate the effect of early retirement due to sports injury on self-esteem, QOL, and physical satisfaction in active and inactive Iranian elite athletes.

The researcher intends to investigate the effect that involuntary retirement from sports due to injuries can have on mental health. The aim is to answer this question: Is there any significant difference in self-esteem, QOL, health, and personal satisfaction between active and inactive Iranian elite athletes who retire early due to sports injuries?

Methods

According to the objectives and content, the present study was cross-sectional, descriptive, and comparative

causal. This study has received support from the Research Ethics Committee of Hamadan University of Medical Sciences under the approval number IR. UMSHA. REC. 1400. 676. The information was obtained through a questionnaire and field research. This study was conducted in Hamedan sports clubs in 1399. The statistical population of this study consisted of active and inactive elite athletes in the city of Hamedan, aged between 55-70 years. From this population, 40 elite athletes were selected. These athletes, who had retired due to sports injuries, were divided into two groups of 20 active and inactive individuals using the Statistical snowball method based on inclusion and exclusion criteria [27].

The inclusion criteria included retired veteran athletes due to sports injuries, age range between 55-70 years, completion of the specific consent form, and completion of all questionnaires. The exclusion criteria included cancellation, unwillingness to continue the research, and incomplete questionnaires.

The first step in conducting the research involved evaluating the statistical population and the individuals available for the investigation. To do this, all available individuals were informed about the research's purpose and process, making them aware of the study's intention. After completing the individual consent questionnaire, the subjects received a demographic information questionnaire. In this questionnaire, subjects reported age, height, weight, sports history, championship history, injury history, and weekly activity. This demographic information, which constituted the personal information of each subject, was kept confidential. Following this stage, questionnaires related to research variables were distributed to the subjects. The subjects completed QOL, self-esteem, and body image satisfaction questionnaires.

Rosenberg Self-Esteem Questionnaire: This questionnaire measures self-value and consists of ten questions asking whether the subjects agree or disagree. The subject answers with 'yes' or 'no'. A 'yes' answer is scored as one for the first five questions, and a 'no' answer is scored as zero. The scoring for the last five questions is reversed: a 'yes' answer is zero, and a 'no' answer is one. The total score in this questionnaire is 10 [28]. In the preliminary and final studies, Cronbach's alpha was calculated to determine the questionnaire's reliability, yielding scores of 0.76 and 0.71, respectively. Rajabi and Bohlool reported the reliability coefficient of this questionnaire in Iranian adolescents and young people to be 0.84, and the internal consistency of this test ranged from 0.72 to 0.87 [29].

SF-36 Questionnaire: This questionnaire is a multi-item scale that evaluates eight health concepts: 1: Limits on physical activity due to health problems, 2: Restrictions on social activities due to physical or emotional problems, 3: Limitations in daily activities due to physical health problems, 4: Physical pain, 5: General mental health) discomfort and mental well-being(, 6: Restrictions on daily activities due to emotional problems, 7: Vitality)energy and fatigue(, and 8: General perception of health [19].

These eight QOL scales are summarized into two dimensions: physical health and mental health. The

'physical health' dimension includes the first four subscales: physical function, physical role, physical pain, and general health. The 'mental health' dimension includes the last four subscales: vitality, social position, emotional function, and mental health.

The 'convergence validity' test, which measures the correlation of each question with the hypothesized scale, yielded positive results. All correlation coefficients exceeded the recommended value of 0.4, with a range of coefficient variation from 0.58 to 0.95. The factor analysis test identified two main components that explained 65.9% of the dispersion between the scales of the SF-36 questionnaire. The reported reliability coefficient for the subscales ranged from 77% to 90%, except for the 'life' subscales, which were 65%. Overall, the findings have shown that the Iranian version of this questionnaire is a suitable tool for measuring quality of life [30].

The Body-Esteem Scale Mendelson: Body image represents a person's perception of their body and is an essential part of their self-image. This is because a person's physical appearance is often the first feature judged when people interact with each other. On the other hand, one of the criteria for mental health is satisfaction with one's physical image and a positive attitude towards the body. The body image questionnaire, which has an internal correlation of 0.89 and a reliability of 0.88, consists of 23 items and three subscales: satisfaction with appearance, the attitude of others, and weight. It has been prepared with a Likert scale ranging from zero (never) to 4 (always) [31]. This questionnaire has been standardized in the country using the content validity index and content validity ratio. The average content validity index is 0.88, and the average content validity ratio is 0.85, indicating the questionnaire's validity in the country. Cronbach's alpha coefficient value was 0.84 [32].

After completing this step, the obtained information was summarized and categorized into the software. It should be noted that ethical considerations were fully observed in this study. All subjects had the right to withdraw from the study at any time. Also, before administering the questionnaire, each participant was asked whether they agreed to complete it.

Statistical Method

Both descriptive and inferential statistical methods were utilized to analyze the obtained information. Descriptive statistics were used to organize, summarize, and describe demographic information. Before examining the research hypotheses, the normal distribution of the data was examined using the Shapiro-Wilk test. An independent t-test was employed to compare the research variables and their differences between the active and inactive groups in the case of normal distribution. In contrast, the Mann-Whitney U test was used in case of abnormal distribution. All statistical calculations for this study were performed using SPSS software version 24 at a 95% significance level with an alpha of less than or equal to 0.05.

Results

This section describes the research subjects'

Table 1: Personal characteristics of the subjects

Variable	Active Group		Inactive Group	
	Average	Standard Deviation	Average	Standard Deviation
Age [year]	66.10	4.98	67.15	4.71
Height [cm]	166.90	3.91	166.50	4.12
Weight [kg]	66.60	10.07	65.70	4.70

Table 2: Results of the Mann-Whitney U test for self-esteem and physical satisfaction between the two groups

Variable	Group	Mean	Standard deviation	Mann-Whitney U	P value
Self-esteem	Active G	30.20	4.32	29.50	0.001
	Inactive G	24.30	1.55		
Satisfaction with appearance	Active G	18.55	3.26	182.50	0.630
	Inactive G	17.85	2.13		
Satisfaction with the attitude of others	Active G	12.60	1.27	148.00	0.149
	Inactive G	11.85	1.59		
Weight satisfaction	Active G	27.65	7.17	40.500	0.001
	Inactive G	19.35	3.63		
Body image	Active G	58.80	6.27	48.50	0.001
	Inactive G	49.05	4.55		

characteristics, including their height, weight, and age. These features are presented in Table 1. The Shapiro–Wilk test was utilized to evaluate the normality of data distribution. Given that the significance level of this test for all data related to self-esteem, quality of life, and physical satisfaction was less than 0.05 ($P < 0.05$), a normal data distribution was not expected. The Mann-Whitney U test was employed at a significance level of 0.05 to investigate the differences between the groups in the research variables.

The results of the Mann-Whitney U test, as shown in Table 2, indicated a significant difference in self-esteem values between the active and inactive groups ($P < 0.05$). This suggests that the active group reported better self-esteem than the inactive veterans. The mean score on the Rosenberg self-esteem questionnaire was higher for the active group [30.20] than the inactive group [24.30], indicating greater confidence in the active group.

Also, Table 2 revealed a significant difference between the two groups, active and inactive, in the values related to the overall body image score ($P < 0.05$). It suggests that the active group was more satisfied with their physical condition than the inactive group. Upon examining the components of the Physical Satisfaction Questionnaire in this study, it was found that there was a significant difference between the two groups in the overall score of body image and satisfaction with appearance ($P < 0.05$). However, there was no significant difference in satisfaction with the attitude of others and body weight between the two groups ($P > 0.05$).

By examining the means of the two groups, it was found that the active group had greater physical satisfaction. The norm obtained in the Mendelssohn questionnaire was higher for the active group [58.80] than the inactive group [49.05], which showed the superiority of the active group.

The results of the Mann-Whitney U test, as shown in Table 3, indicated a significant difference in the values related to QOL and its components, which include mental health, physical function, physical limitation, physical pain, emotional limitation, social position, energy and vitality, mental health, and overall QOL score, between the active and inactive groups ($P < 0.05$). This suggests that

the active group reported a better QOL than the inactive group. Upon examining the means of the two groups, it was found that athletes in the active group had a higher QOL. The norm obtained in the total score of the QOL questionnaire was higher for the active group (56.15 ± 1.73) compared to the inactive group (51.51 ± 2.60), indicating a higher QOL in the active group.

Discussion

This study aimed to investigate sports injuries and psychological factors (self-esteem, QOL, and physical satisfaction) of active and inactive Iranian elite athletes after early retirement due to sports injuries. Based on the results, as expected, we found that participants in the active group reported better general health, physical function, and overall QOL compared to the inactive group. Additionally, the active group reported better self-esteem than the inactive group. Upon examining the components of body image (satisfaction with appearance, attitudes toward others, and weight), we observed an overall superiority of body image satisfaction in the active group.

Research literature in this field is limited, and the results of several studies closely related to ours have examined retirees' psychological and physical factors. For example, Shander et al. conducted a cross-sectional study discussing the relationship between the psychosocial aspects of sports transition with body satisfaction, depressive symptoms, and life satisfaction among retired elite female athletes. They found that events occurring in athletes' lives during the transition from exercise may have long-term effects on their mental health during retirement [33].

Similarly, Rodygina et al. concluded in a cross-sectional study that the significant problems elite hockey players face after retirement are related to their social performance due to limitations in social activity [34]. Amorim et al., in a systematic review, concluded that retirement characteristics (voluntary retirement, retirement time (and leisure activities are now aggregated as having a positive effect on well-being [35].

Table 3: Results of the Mann-Whitney U statistical test for quality of life(QOL) between the two groups

Variable	Group	Mean	Standard deviation	Mann-Whitney U	P value
General health	Active G	60.60	5.65	96	0.005
	Inactive G	52.50	10.72		
Physical function	Active G	60.65	5.60	106.500	0.010
	Inactive G	48.40	14.32		
Physical limitations	Active G	45.60	4.82	24	0.001
	Inactive G	55.80	4.68		
Physical pain	Active G	48.30	6.05	113.500	0.018
	Inactive G	55.35	10.17		
Emotional constraints	Active G	47.25	5.01	85	0.001
	Inactive G	53.85	7.30		
Social Performance	Active G	65.25	8.38	76	0.001
	Inactive G	54.30	8.36		
Energy and vitality	Active G	63	7.35	21	0.001
	Inactive G	44.75	3.89		
Mental health	Active G	58.45	8.41	66	0.001
	Inactive G	47.15	8.47		
Total score	Active G	56.15	1.73	31	0.001
	Inactive G	51.51	2.60		

Filho et al. identified the predictors of health-related QOL among former athletes in a cross-sectional study by examining health-related QOL (physical health and mental health scores) and demographic variables (gender, age, education, occupation, marriage, and income), health status (body mass index, drug use, chronic problems, sports injuries that affect daily life and health tips of their coaches). They concluded that sports injuries could affect the current everyday life of retirees, a result consistent with our study [36].

The study by Adriana et al. provides valuable insights into the relationship between sports identity, retirement, and self-esteem among Paralympic athletes. The findings revealed that there was no significant difference in self-esteem between the active group and the retired group. However, involuntarily retired athletes had lower self-esteem scores within the active group than those who voluntarily retired. This suggests that the freedom to choose retirement may positively impact athletes' self-esteem [37].

Most previous studies have been conducted on sports retirees without considering whether they remain active or become inactive after exercise. Much of the research has focused on the QOL of athletes during their careers or the transition to retirement. There is a need to gather more evidence on QOL and physical satisfaction in sports retirees, considering life satisfaction, self-esteem, and physical satisfaction throughout life.

Many factors can affect these structures after retirement from exercise, including the reason for retirement, type of exercise, history of injury, level of activity, and chronic pain. However, what factors are associated with a better or worse QOL and life satisfaction after retiring from exercise need to be clarified. Such information may provide strategies to enhance the positive effects of training over a lifetime.

The findings of this study show that sports participation can have long-term physical consequences that negatively affect QOL. However, sports participation can also have positive mental effects beyond retirement and increase health-related QOL. Therefore, strategies are needed to reduce the adverse physical effects and enhance the

positive mental effects of sports participation to optimize the health and well-being of athletes throughout their lives.

Preventing sports injuries and ensuring proper rehabilitation are crucial for athletes' long-term well-being. Emphasizing injury prevention programs, ensuring adequate rest, and avoiding overexertion can significantly reduce the risk of injuries. When injuries occur, high-quality rehabilitation programs are essential for optimal recovery.

A collaborative approach involving coaches, sports medicine staff, and players is crucial in determining the appropriate timeline for an athlete's return to play after an injury. This ensures that athletes are not rushed back into action before they are fully ready, reducing the risk of re-injury and long-term complications.

Furthermore, educating current players at all levels of competition about the potential long-term consequences of sports-related injuries is essential. Learning from retired athletes who have experienced injuries can raise awareness and encourage a proactive injury prevention and management approach.

By prioritizing injury prevention, proper rehabilitation, and informed decision-making regarding return to play, the sports community can promote athletes' long-term health and well-being. This comprehensive approach safeguards the athletes' physical health and contributes to their psychological well-being, enhancing their overall QOL.

In addition, by examining QOL in two general dimensions - physical health and mental health - and self-esteem in retirement, we also scrutinize body image satisfaction in three subscales: satisfaction with appearance, attitude of others, and weight. This is done for both active and inactive groups of elite Iranian retirees. Given the significant advantages observed in the group of active retirees, it is suggested that sports health and psychological experts pay more attention to the post-elite period of sports. It is also recommended that elite sports retirees who are transitioning after their professional sports careers continue their sports activities as much as possible.

The proposal to conduct qualitative research to delve

deeper into the perceived effects of sports-related injuries on mental health, as well as the call for more longitudinal studies, is indeed valuable. These methodologies can offer a more comprehensive understanding of the long-term impact of injuries on athletes' well-being. Moreover, expanding the sample size and incorporating a wider range of sports teams in future studies could enhance the generalizability of the findings. Prioritizing mental skills rehabilitation exercises for injured athletes and conducting further research could provide more consistent and valid results.

Acknowledging limitations within the study is essential for a comprehensive understanding of its findings. One notable limitation is the inability to delve into the daily life issues of participants beyond their questionnaire responses, which may have limited the depth of insight into their experiences. Furthermore, the reliance on self-reported scores for aspects such as body image and mental health could introduce potential biases and inaccuracies. The methodological limitations associated with the cross-sectional questionnaire design are also recognized, underscoring the inherent potential for bias in questionnaire-based studies. Recognizing these limitations is crucial as they can influence the interpretation and generalizability of the study's findings.

Conclusion

According to the study results, active retirees, compared to inactive retirees, reported higher scores in the QOL index, self-esteem, and satisfaction with their physical condition. It is suggested that sports health and psychological experts pay more attention to the post-elite period. It is also recommended that elite sports retirees continue their light sports activities as much as possible after their professional sports careers.

The study suggests that inactive retirees have better QOL and satisfaction with their physical condition compared to active retirees. It highlights the benefits of transitioning to lighter sports activities after a professional sports career and emphasizes the need for support during retirement. The study acknowledges limitations but encourages future research on the long-term effects of sports-related injuries on mental health.

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Conflict of Interest: None declared.

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