

## Article

# Exploring the Role of Team Leisure Sports in Enhancing Occupational Commitment and Sustainability Among Construction Workers: A Focus on Team Cohesion

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**Abstract:** In the context of high turnover rates in the construction industry, team leisure sports activities have been increasingly promoted, with growing attention on their potential impact on the sustainability of construction workers' occupational commitment. However, there is a lack of systematic research on the mechanism through which team sports promote occupational commitment. This study explores how team leisure sports activities enhance the sustainability of construction workers' occupational commitment through the mediating effect of team cohesion, integrating perspectives from social psychology and organizational behavior. Data were collected from 509 Chinese construction workers using a structured questionnaire. The results revealed the following: (1) Four dimensions of team sports experience—social interaction quality, emotional engagement, team culture perception, and work pressure relief—positively affected workers' commitment to sustainability. (2) Team cohesion mediated the relationship between the team sports experience and sustainability. This study provides insights into career sustainability in the construction industry and highlights the importance of team cohesion in enhancing workers' professional commitment. The findings offer practical implications for optimizing team-building and human resource management strategies, with a focus on retaining employees in the construction industry.

**Keywords:** construction workers; team leisure sports activities; team cohesion; career sustainability; structural equation model



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## 1. Introduction

Employee turnover is still a serious problem in many industries worldwide [1]. Excessive staff turnover often places a significant burden on companies. A study showed that employee turnover can result in a loss of about 20% of recruitment and training costs, as well as productivity [2]. This problem is more serious in the construction industry than in other industries [3]. According to the “2023 Migrant Workers Monitoring and Investigation Report” released by China’s National Bureau of Statistics, the number of migrant workers in the construction industry decreased by an astonishing 15.27 million from 2014 to 2023. The reasons for this are, from a physical perspective, that construction workers’ work generally involves high-intensity manual labor, long hours of outdoor work, and a great physical load, which can easily lead to health problems (such as muscle soreness and other occupational

diseases), further increasing the sense of professional burnout and job dissatisfaction [4]. Next, construction workers often work in difficult environments and conditions, with high levels of psychological stress. Due to the scattered work locations and less teamwork, workers tend to feel isolated and helpless, and the long-term high-pressure psychological burden also increases the risk of turnover [5]. In addition, construction projects usually have strict time limits, and tight construction periods are common. Long-term overtime and high-pressure work make workers physically and mentally exhausted, and they have low job satisfaction, which also exacerbates employee turnover [6].

The construction industry faces a high turnover rate. The loss of core employees can lead to disruptions in project continuity and the loss of skills and knowledge, as well as increased recruitment and training costs, reduced team cohesion, and an impact on corporate competitiveness. Therefore, retaining core employees has become the key to the sustainable development of the construction industry [7]. Some companies have begun to try people-oriented care measures. A realistic example is China Construction Eighth Engineering Division, a Chinese construction giant, which regularly organizes team-building activities and recreational sports events to promote employee communication and cooperation and enhance team stability. Meanwhile, some companies in other countries have also launched occupational health programs, rehabilitation exercise guidance, and so on [8,9], in order to enhance the satisfaction of construction workers from different aspects, and these methods have achieved positive results in initial implementation. Although these measures have achieved positive results in initial implementation, there has been little in-depth discussion on why these methods are effective. Most research and practice focuses on the superficial effects of measures without delving into the underlying mechanisms [10]. Many companies and scholars prefer to focus on short-term effects, such as a decrease in employee turnover in the short term, while ignoring the deeper mechanisms of how these measures improve the working environment for employees, enhance their mental health, and strengthen their sense of belonging. We contend that in order to develop more targeted retention strategies, it is necessary to gain a deeper understanding of the underlying mechanisms in order to more effectively promote the long-term career commitment of construction workers.

Leisure team sports, as the main form of relaxation currently commonly adopted by construction companies, have been proven to have a positive effect on relieving employees' physical fatigue and improving their job satisfaction [11]. Many construction companies help employees release pressure and improve their physical and mental health by regularly organizing sports events and team-building activities [12]. However, most of the existing research has focused on the impact of these activities on employees' personal health and short-term emotions, and few have explored their role from the perspective of team cohesion [13]. In fact, leisure team sports are not just a way to relax [14]. Through enhancing interaction, cooperation, and trust among team members, they can effectively improve team cohesion, thereby promoting emotional connections among employees and their sense of belonging to the company [15]. However, there is still relatively little research on the sustainable promotion of employees through team leisure sports, and there is a significant gap [16]. At the same time, due to the team-oriented nature of construction projects, the role of team cohesion has not been effectively assessed [17]. In order to fill this research gap, this study conducted an in-depth exploration of the role and significance of leisure team sports in the construction industry from the perspective of team cohesion, based on the four dimensions of team leisure sports experience. The main objectives of this study were to investigate how leisure team sports promote the long-term career commitment and professional sustainability of construction workers, explore the role of team cohesion in sustaining these benefits, and provide effective strategies for retaining employees in the

construction industry through team-building activities. It provides new perspectives and theoretical frameworks for academic research in related fields and further promotes the long-term sustainable development of team building and employee career commitment. By revealing the mechanisms behind it, this study hopes to provide the construction industry with more effective employee retention strategies. The technology roadmap of this study is shown in Figure 1.

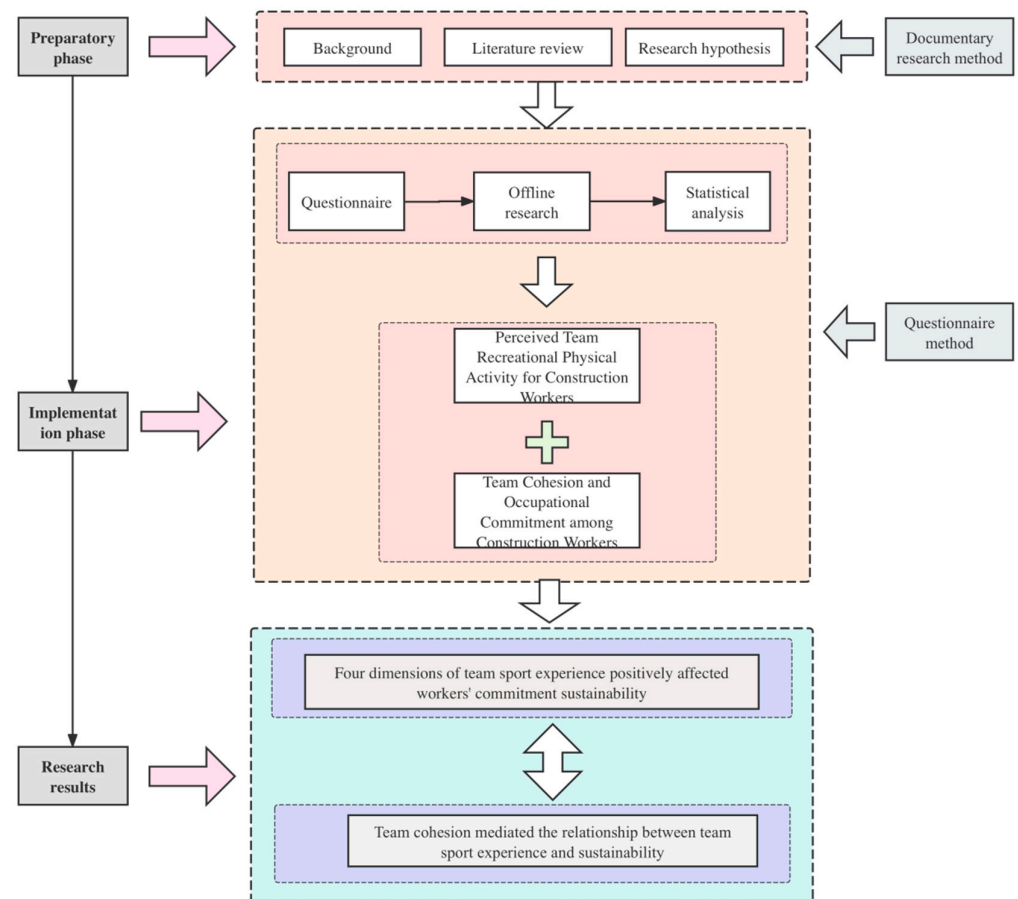


Figure 1. Technology roadmap.

## 2. Literature Review and Research Hypothesis

### 2.1. Construction Worker Career Sustainability and Team Leisure Sports Experience

Career sustainability for construction workers refers to the ability of construction workers to maintain their health, stability and continued development throughout their careers [18,19]. This includes aspects such as physical health, mental health, job satisfaction, and job stability [20]. Ensuring that construction workers can achieve career sustainability helps to reduce worker turnover, improve productivity, and ensure the long-term stable progress of construction projects. At the same time, career sustainability also needs to ensure the comprehensive development of workers throughout their careers through measures such as improving working conditions, enhancing opportunities for vocational training and development, and paying attention to workers' mental health [21–23]. This has far-reaching significance for optimizing the labor structure and improving productivity across the industry. The career sustainability of construction workers is of great significance for the long-term labor stability and productivity of the construction industry [24].

Team leisure sports experience refers to the multidimensional experience that construction workers gain through participation in team-organized leisure sports activities, including the social connection, emotional engagement, team atmosphere, and work stress

relief they experience [25]. General research has shown that leisure sports experience has a significant positive impact on the career sustainability of construction workers [26]. In other words, participating in team leisure sports can help reduce the physical fatigue and psychological pressure that construction workers accumulate in a high-intensity work environment, thereby improving their overall sense of well-being at work. In addition, team sports can enhance the emotional bond between workers, promote mutual trust and cooperation, and thus optimize the working environment and teamwork. These factors, combined, promote the stability and sustainability of construction workers' careers. Therefore, team leisure sports not only play a positive role in improving the physical and mental health of workers but also have a potential long-term impact on enhancing workplace cooperation and improving work efficiency. As Joubert and De Beer found, team sports not only enhance employees' sense of self-realization but also enhance trust and teamwork among employees [27]. Zhao et al. pointed out through the theory of dual processing that rehabilitation exercises can promote construction workers' continued commitment to their occupation by enhancing their physical and psychological resilience [28].

Social Support Theory holds that support from social relationships can have a positive impact on an individual's mental health, emotional regulation, behavior, and quality of life [29,30]. This theory focuses on how people can obtain help and support through interactions with others when facing stress or difficulties so as to effectively cope with various challenges in life and work [30]. Social support can come from family, friends, colleagues, and wider social connections. Theories emphasize the importance of these interactions and support for people's physical and mental health [29]. Team leisure sports experiences can increase the durability and job satisfaction of construction workers by improving their physical and mental conditions. Based on this, this paper proposes the following hypothesis:

**H1.** *Team leisure sports experiences have a positive impact on construction workers' career sustainability.*

## 2.2. Social Interaction

Social interaction refers to the quality of interaction between workers and others in their work and team sports activities, including communication, collaboration, and support [31,32]. Effective social interaction also includes building meaningful relationships at work and fostering a team spirit of mutual trust so that workers feel supported and psychologically secure at work [33]. Social interaction is central to teamwork and involves how information is effectively communicated, how people learn from each other, and how they motivate each other in times of difficulty [34]. High-quality social interaction promotes a sense of belonging among construction workers, relieves work-related stress, and increases their motivation and job satisfaction [35]. The quality of social interaction also has a positive effect on workers' mental health, helping to reduce burnout and increase well-being [36]. All of this has a positive impact on job sustainability. Research has shown that good social interaction has a significant positive effect on the job sustainability of construction workers. Joubert and De Beer found that social interaction established through team sports can improve trust, camaraderie, and the working environment among employees, factors that can significantly improve employee job satisfaction [37]. Meanwhile, Gao et al. found that social support in the work environment has a positive impact on improving team atmosphere and reducing return intentions, which also shows the importance of good social interaction for the occupational continuity of construction workers [38]. Some studies have shown that when workers feel positive support from their teams, their commitment to their occupation and job satisfaction also increase [39]. This support works by reducing feelings of isolation and enhancing feelings of social identity. The positive effect of the frequency

and quality of social interactions on workers' psychology has also been confirmed, and it is particularly important in helping workers cope with stress and solve work challenges [40]. Based on this, this paper proposes the following hypothesis:

**H2.** *Positive social interactions influence construction workers' career sustainability.*

### 2.3. Emotional Engagement

Emotional engagement refers to the psychological involvement of workers in work teams and activities, including interest, passion, loyalty, and enthusiasm for work [41]. It is also reflected in the collective spirit of teams in various activities, project collaboration and response to challenges in the daily work of workers and usually includes workers' sense of identity with team goals, emotional ties with team members and willingness to take responsibility actively [42,43]. Emotional engagement can increase workers' motivation and loyalty, thereby enhancing their sustainability in the occupation, helping them face occupational challenges and forming a stronger sense of belonging to the team [44,45]. In the construction scene, where workers face more complex and stressful tasks, a high level of emotional engagement can enhance their psychological resilience and prompt them to solve problems and cope with stress more effectively. In addition, emotional engagement also promotes positive interactions between workers and teams, which has a significant impact on enhancing team cohesion, improving overall work performance and workers' job satisfaction [46,47]. Zhang and Fei's research found that emotional engagement in the construction industry is influenced to some extent by an individual's social status, and that an increase in emotional engagement can improve job satisfaction and team belonging, thereby promoting career sustainability [48]. Miao et al. explored the dynamic role of positive emotions based on the extended construction theory and showed that high emotional engagement can enhance occupational satisfaction and resilience, which is of great significance for the career sustainability of construction workers [49]. The research also pointed out that emotional engagement is closely related to workers' ability to cope with occupational challenges. The higher the degree of engagement, the more likely workers are to actively face and solve difficulties at work. High emotional engagement also helps cultivate workers' team spirit, which in turn promotes the achievement of team goals and improves overall work efficiency [50]. These factors, working together, significantly enhance workers' job continuity and potential for career growth [51]. Based on this, this paper proposes the following hypothesis:

**H3.** *Positive emotional engagement influences construction workers' career sustainability.*

### 2.4. Team Culture Perception

Team culture perception refers to the core values, behavioral norms, and team atmosphere that workers perceive and experience through participation in team leisure sports activities [52,53]. This cultural perception comes from identifying with the team's goals, code of conduct, and overall values, as well as the direct experience of the team atmosphere through interaction and cooperation in leisure sports [54]. As workers' identification with the team culture deepens, they are more likely to feel a sense of belonging, integrate into the team and further promote the achievement of collective goals [43]. A positive team culture perception helps to improve the sustainability of workers' careers by enhancing their psychological safety and sense of belonging [55]. Through the shared experience of team leisure sports, workers can identify with team values at a higher level and engage in their work with a more positive attitude, full of enthusiasm when facing challenges [56]. This cultural perception promotes close cooperation and shared goals within the team, enhancing workers' sense of support for the team and their motivation to develop together [57].

A good team culture perception can also effectively reduce workers' sense of isolation at work and enhance their sense of professional well-being and intrinsic motivation. Fong and Lung studied the impact of team culture perception on teamwork. The results showed that team members' identification with team culture has a significant positive impact on their work attitude, and team culture perception can enhance employees' enthusiasm for work and loyalty to the team, thus having a positive impact on career sustainability [58]. Ogwueleka and Ikediashi also pointed out that perceptions of positive organizational behavior and team culture can have a significant impact on employee positive emotions and career sustainability. Their research highlights the importance of organizational culture and values in motivating employees and improving career stability, which is even more significant for construction workers in high-intensity occupations [59]. Based on this, this paper proposes the following hypothesis:

**H4.** *Team culture perception positively influences construction workers' career sustainability.*

## 2.5. Work Stress Relief

Work stress usually comes from factors such as excessive workload, time pressure, role conflicts, and poor working environment [60]. Prolonged high stress can lead to psychological problems such as anxiety, fatigue, and depression, which can further affect an individual's work performance and quality of life [61]. To cope with this stress, many studies have mentioned that relieving work stress through a comprehensive approach of psychological and physiological regulation is a more effective strategy [62,63]. In the scope of this paper, work stress relief refers to the reduction in perceived psychological and physiological stress after participating in team recreational sports activities. Participating in team recreational sports activities can effectively relieve work stress. It also provides an opportunity for employees to temporarily escape from work and helps to establish positive emotional connections by enhancing teamwork and social interaction [64]. Participating in sports activities with colleagues can enhance mutual trust and support in a relaxed and enjoyable atmosphere, alleviating the sense of isolation and tension that may be brought about by work [65]. At the same time, sports activities also help to relax the body and mind and reduce feelings of anxiety and depression by promoting the release of chemicals in the body, such as endorphins [66]. During exercise, the body's exercise load and improvement of cardiopulmonary function not only help reduce psychological stress but also improve the physiological state and regulate heart rate and blood pressure, thus providing individuals with a process of regulating physical and mental balance [67]. In short, team recreational sports activities are an effective way to relieve work stress by promoting both psychological and physical regulation.

Effective stress management can improve workers' physical and mental health, reduce burnout and thus enhance their career sustainability [68]. Stress management can help workers deal with work challenges more positively, reducing long-term stress-related health problems and productivity losses [69]. It can also effectively improve workers' emotional stability, making them more focused and being productive at work [70]. Clark et al. studied workplace-integrated stress management programs that included physical activity and found that participation in such activities can effectively reduce worker stress and significantly improve their job continuity, and these activities not only improve workers' physical health but also enhance their psychological resilience and work motivation [71]. Jafari et al. studied the effect of relieving work stress through strength-based recreational activities and found that this intervention can effectively improve the work environment and employees' career sustainability. They pointed out that recreational activities designed by combining workers' personal interests and strengths can greatly improve workers' participation and effectiveness, which is of great significance for long-term reduction in

work stress and improvement of career satisfaction [72]. Stress management can improve well-being at work and workers' psychological resilience, thereby promoting their better adaptation to the high pressure and challenges in the construction work environment [73]. Based on this, the following hypothesis is proposed:

**H5.** *Working stress relief has a positive impact on construction workers' career sustainability.*

## 2.6. The Intermediary Role of Construction Team Cohesion

Construction team cohesion refers to the cooperation, trust, and sense of belonging among team members. It is the foundation of joint efforts and mutual support within a team and can significantly enhance team motivation and overall performance [74]. In the scenario described in this article, by participating in team leisure activities, workers can increase their sense of trust, spirit of cooperation, and sense of mutual assistance among members. At the same time, this makes workers more willing to integrate into the team and also motivates them to support each other more, thus improving the overall team cohesion. Compared to a high-pressure work environment, team leisure sports are relaxed and enjoyable [75]. Workers relax and unwind through common sports activities and recreational projects, and their communication becomes more natural and their emotional connection stronger [76]. When this enhanced team cohesion is translated into actual support and a sense of belonging, workers' job satisfaction and job commitment will be enhanced, thereby enhancing the sustainability of their careers [77]. In other words, team leisure activities not only improve the team atmosphere, but also have a positive impact on workers' long-term career development.

Research has shown that team sports can affect the career sustainability of construction workers through increased team cohesion. Senécal, Loughhead, and Bloom studied a team-building intervention that lasted one season and found that the increase in team cohesion significantly improved the overall teamwork level of the team and the job satisfaction of its members [78]. Coincidentally, research by Scotto di Luzio and others further points out that team activities enhance the sense of community and cohesion among members, thereby improving their work vitality and willingness to stay for the long term [79]. Team sports experiences not only improve individual physical health but also enhance teamwork and overall performance by promoting team cohesion. A high level of team cohesion provides construction workers with a more supportive and positive work environment, which is essential for improving their career sustainability [80]. Based on this, the following hypothesis is proposed:

**H6.** *Construction team cohesion mediates the effect of team leisure sports experiences on construction workers' career sustainability.*

High-quality social interactions can improve team cohesion and thus the career sustainability of construction workers [81]. Good interactions promote communication and emotional connections between team members [82]. This close emotional connection enhances team cohesion, which allows workers to gain more psychological and emotional support when facing work challenges, enhancing their career stability and development potential [83]. Eldadi, Sharon-David, and Tenenbaum studied emotional interactions in team sports and found that emotional contagion and the quality of social interactions have a significant impact on team cohesion and overall performance [84]. Fredrickson's research also showed that the sharing of positive emotions and social interactions can promote closer ties among team members and significantly improve team cohesion [85]. The quality of social interaction can positively influence workers' career sustainability by enhancing team cohesion. High-quality social interaction can also enhance workers' sense of security

and support in the team, so that workers can obtain help and understanding from the team when dealing with high-pressure work tasks, thereby reducing their psychological burden [86]. The frequency of social interaction and positive feedback also promotes workers' commitment to their careers, making them more willing to serve the team for a long time, showing higher work loyalty and motivation for continuous development [87]. Based on this, the following hypothesis is proposed:

**H6a.** *Construction team cohesion mediates the effect of the quality of social interaction on construction workers' career sustainability.*

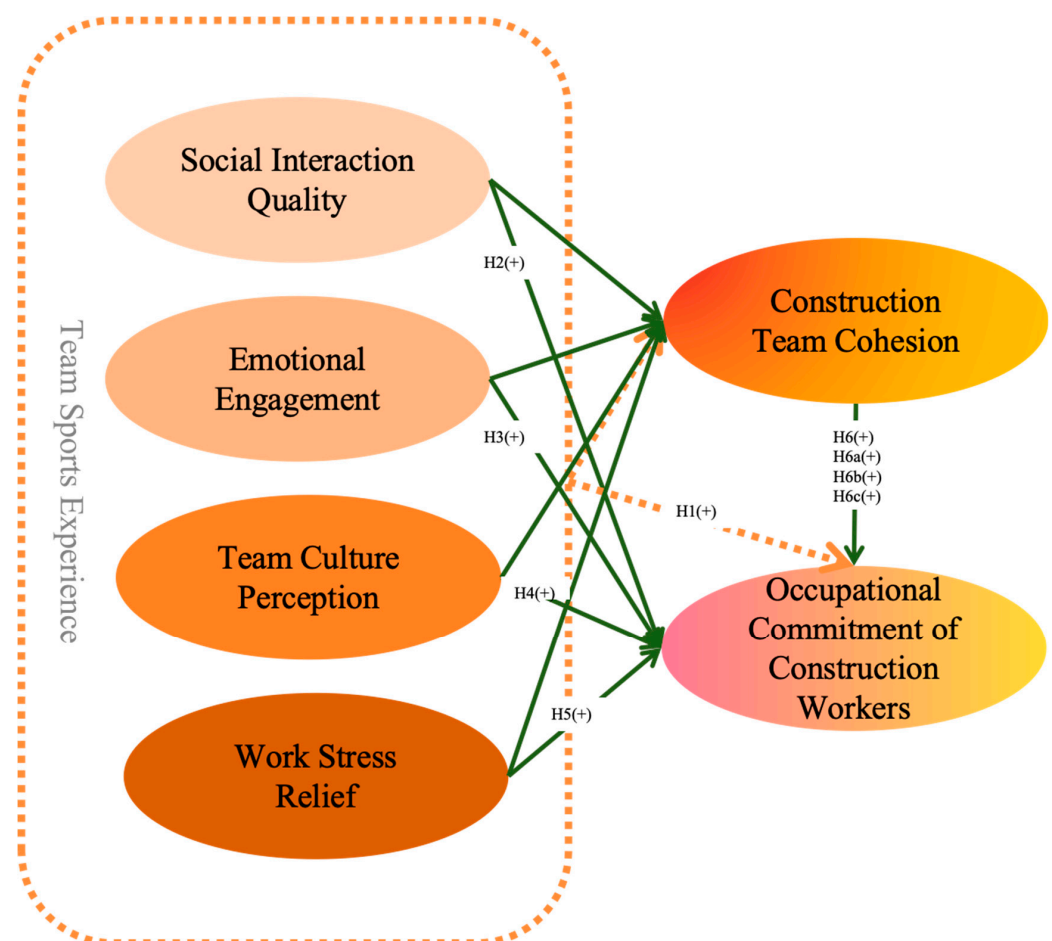
The higher the emotional engagement of workers in a team, the more likely they are to actively participate in team activities and identify with the team's goals. This engagement directly affects team cohesion. Increased team cohesion makes workers more willing to work for the team's success, thereby improving career stability and sustainability. Fusaroli et al. studied how positive emotional engagement enhances career satisfaction and career sustainability through team cohesion based on the expansion–construction theory [88]. Research by Cohn and Fredrickson also showed that high emotional engagement can improve career sustainability by increasing team cohesion, making workers feel more like a part of the team and more enthusiastic about their work [89]. Emotional engagement is an important driver of team cohesion, and increased team cohesion contributes to construction workers' occupational well-being and sustainability [90]. A high level of emotional engagement is not only expressed in enthusiasm for teamwork but also in the giving and receiving of emotional support among team members [91]. The emotional connection and sense of identity that workers experience in team activities will enhance their motivation in their careers, reduce feelings of loneliness and helplessness at work, and thus improve occupational resilience [92]. High emotional engagement also means that workers will actively seek help and feedback from the team when facing career challenges [93]. This open attitude promotes closer ties between teams and the continuous enhancement of team cohesion [94]. Based on this, the following hypothesis is proposed:

**H6b.** *Construction team cohesion mediates the effect of emotional engagement on construction workers' career sustainability.*

Team culture perception influences career sustainability by enhancing team cohesion [95]. When workers have a high level of identification with the team culture, team cohesion is enhanced, which in turn makes workers more willing to remain in the team for the long term and maintain a high level of work enthusiasm [96]. This cohesion enhances workers' sense of belonging, motivates them to be more engaged at work, and thus improves career sustainability [97]. Tabassi et al. studied the impact of team culture on team cohesion and performance and found that identification with team culture can enhance teamwork spirit and cohesion, thereby improving work performance [98]. Chih et al. pointed out that there is a significant correlation between organizational justice and cultural identity and team cohesion, which further illustrates how team culture perception affects construction workers' career sustainability through team cohesion [99]. The high degree of consistency in team culture perception enables team members to work at the same pace, motivate each other, and actively seek collective solutions when problems arise [100]. The cultural identity within a team also directly affects each member's acceptance and execution of team decisions, thereby promoting overall work efficiency [101]. Based on this, the following hypothesis is proposed:

**H6c.** *Construction team cohesion mediates the effect of team culture perception on construction workers' career sustainability.*

Relieving work pressure can affect career sustainability by improving team cohesion [102]. Reducing work pressure makes it easier for workers to concentrate on team activities and cooperate more actively with team members [103]. This engagement helps to enhance team cohesion, making team members more united and supportive of each other, thus promoting the sustainable development of workers in their careers [104]. Chen et al. explored how sports participation can help healthcare workers relieve work pressure and its impact on burnout and found that physical activity can effectively improve team cohesion and promote career sustainability through this increased cohesion [105]. Wei et al. further pointed out that there is a significant relationship between the effective relief of work pressure and enhancement of team cohesion and that the enhancement of team cohesion plays an important mediating role in stress management, which has a significant impact on construction workers' career sustainability [106]. Effective stress management not only helps improve workers' mental health but also enhances their sense of control over and satisfaction with their work [107]. When work-related stress is relieved, workers have more energy and motivation to participate in team activities and find psychological support in these activities [108]. Frequent participation in team activities strengthens team cohesion so that workers can support each other and work together to solve problems when faced with difficulties [109]. Based on this, the following hypothesis is proposed (a hypothesized model is shown in Figure 2):



**Figure 2.** Proposed model diagram.

**H6d.** *Construction team cohesion mediates the effect of work stress relief on construction workers' career sustainability.*

### 3. Research Design

#### 3.1. Recipients and Questionnaire Distribution

The survey respondents were required to be construction workers with at least six months of work experience and to have participated in company-organized team recreational sports (excluding management and excluding those whose other jobs do not include construction work) to ensure the representativeness of the sample and the accuracy of the data. The target population of the questionnaire survey in this study was large construction companies and their project teams in seven cities in China, including Shijiazhuang, Tianjin, Xi'an, Shenzhen, Hangzhou, etc. The questionnaire survey officially started on 15 August 2024 and was completed on 26 November 2024. The research team distributed and collected the questionnaires on-site, distributing a total of 566 questionnaires to employees on construction sites. After strict screening and data cleaning (duplicate questionnaires, questionnaires that did not answer 30% of the main questions, and questionnaires with contradictory logic were eliminated), 509 valid questionnaires were finally returned, with an effective recovery rate of 89.9%. All questionnaires were distributed and collected on-site by the investigators themselves to ensure the representativeness of the sample and the accuracy of the data. Due to the gender differences in occupational portraits in the Chinese context, most of the construction worker sample were male, including 428 males and 78 females. The age range was between 22 and 55 years old, and the sample ratio was relatively balanced, which has a certain representativeness.

#### 3.2. Variable Measurement

The variable measurements in this paper follow the scales of previous mature research. For example, the measurement of career sustainability in this paper refers to the career sustainability dimensions of Haiyan Kong et al. [110], who focused their measurement on happiness and productivity, and also integrated the scales of Meyer et al. [111] and Suddaby et al. on construction workers' willingness to continue working sustainably [112], which focuses more on whether construction workers are willing to maintain long-term professional commitment. Therefore, this paper summarizes the three dimensions of career sustainability after a rigorous literature review, covering the three points of happiness, productivity, and career commitment, and forms eight scales.

**Social Interaction (SI).** Four dimensions, items: natural interaction in the team, communication quality among team members, building new social connections, team support perception.

**Emotional Engagement (EE).** Four dimensions, items: sense of participation and satisfaction, emotional regulation, positive emotional experience, emotional belonging.

**Team Culture Perception (TCP).** Four dimensions, items: team collaboration atmosphere, team spirit of mutual help, team culture identification, sense of collective goals.

**Work Stress Relief (WSR).** Four dimensions, items: emotional stress relief, physical relaxation, psychological stress reduction, restoration of mental balance.

**Construction Team Cohesion (CTC).** Four dimensions, items: team cooperation spirit, team trust, team cooperation efficiency, team sense of belonging.

The questions in each dimension were scored using a Likert scale of 1 (strongly disagree) to 5 (strongly agree).

At the same time, two experts with a doctorate and the title of professor in the field of leisure sports and four managers with more than 15 years of experience in construction

company operations reviewed the questionnaire. The sources of the scales are shown in Table 1.

**Table 1.** Definition of variables and sources of reference scales.

| Research Variable                | A Test Example of the Question Item                                                                                                      | Reference Scale                                                         |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| Social Interaction (SI)          | I can interact naturally with my colleagues during team leisure sports.                                                                  | Glaeser and Scheinkman [113]<br>Heimberg et al. [114]                   |
| Emotional Engagement (EE)        | I feel a deep sense of joy and satisfaction when I participate in team leisure sports.                                                   | Ulmanen et al. [115]<br>Soane et al. [116]<br>Huang et al. [41]         |
| Team Culture Perception (TCP)    | In team leisure sports, I can feel the atmosphere of active cooperation between team members.                                            | Solís and Mora-Esquivel [117]<br>Jamshed and Majeed [43]                |
| Work Stress Relief (WSR)         | Team leisure sports allow me to temporarily forget the stress of work and help me restore my mental balance.                             | Bevelaqua and Muss [118]<br>Knoop [119]                                 |
| Construction Team Cohesion (CTC) | After a team leisure sport, I feel that the tacit understanding and coordination among team members enables us to better complete tasks. | Callow et al. [120]<br>Salas et al. [121]<br>Carless and De Paola [122] |
| Career Sustainability (CSI)      | I feel responsible for continuing to develop in my current career.                                                                       | Haiyan et al. [110]<br>Meyeret et al. [111]<br>Suddabyet al. [112]      |

## 4. Results

### 4.1. Reliability Test

Reliability refers to the consistency and stability of the scales, and the main index is Cronbach's alpha coefficient. As shown in Table 2, the overall reliability of the scales in this study reached 0.940, and Cronbach's alpha coefficients of the potential variables were all greater than 0.7 (reference the criteria proposed by Nunnally) [123], indicating that the scales have good reliability and internal consistency.

**Table 2.** Results of reliability analysis.

| Research Variable | Alpha | Number of Items |
|-------------------|-------|-----------------|
| SI                | 0.901 | 5               |
| EE                | 0.890 | 6               |
| TCP               | 0.880 | 5               |
| WSR               | 0.846 | 4               |
| CTC               | 0.891 | 5               |
| CSI               | 0.917 | 8               |
| All               | 0.940 | 33              |

### 4.2. Exploratory Factor Analysis

Exploratory factor analysis (EFA) can be used to determine which observations are changing together to model the measurements, which is useful for the researcher to gain an initial understanding of the conceptual structure of the domain, and can also be used to downscale the data to reduce the number of relevant observations, thus simplifying the subsequent structural equation modeling [124].

The data were first subjected to the KMO test and Bartlett's test of sphericity with the aim of verifying that the data were eligible for factor analysis. In this paper, SPSS25 was used to perform the test and factor analysis. As can be seen from Table 3, the overall KMO

value of the scale was 0.933, which is greater than 0.8 (reference Shrestha's standards) [125], and the  $p$  value was less than 0.001, indicating that the data validity is good enough for factor analysis.

**Table 3.** KMO and Bartlett's Test.

|                                                        |                    |              |
|--------------------------------------------------------|--------------------|--------------|
| <b>Kaiser–Meyer–Olkin Measure of Sampling Adequacy</b> |                    | <b>0.933</b> |
| Bartlett's Test of Sphericity                          | Approx. Chi-Square | 10,589.243   |
|                                                        | df                 | 528          |
|                                                        | Sig.               | 0.000        |

As can be seen from the total variance explained in Table 4, the factor analysis in this study extracted a total of six factors with eigenroot values greater than 1. The variance explained by the rotation of these six factors was 15.838%, 11.977%, 11.0836%, 10.662%, 10.513%, 8.361%, respectively, and the cumulative variance explained by the rotation was 68.435%.

**Table 4.** Total variance explained.

| Component | Initial Eigenvalues |               |            | Extraction Sums of Squared Loadings |               |            | Rotation Sums of Squared Loadings |               |            |
|-----------|---------------------|---------------|------------|-------------------------------------|---------------|------------|-----------------------------------|---------------|------------|
|           | Total               | % of Variance | Cumulative | Total                               | % of Variance | Cumulative | Total                             | % of Variance | Cumulative |
| 1         | 11.439              | 34.664        | 34.664     | 11.439                              | 34.664        | 34.664     | 5.227                             | 15.838        | 15.838     |
| 2         | 2.915               | 8.833         | 43.497     | 2.915                               | 8.833         | 43.497     | 3.953                             | 11.977        | 27.816     |
| 3         | 2.491               | 7.549         | 51.046     | 2.491                               | 7.549         | 51.046     | 3.657                             | 11.083        | 38.899     |
| 4         | 2.226               | 6.746         | 57.792     | 2.226                               | 6.746         | 57.792     | 3.519                             | 10.662        | 49.561     |
| 5         | 1.969               | 5.966         | 63.759     | 1.969                               | 5.966         | 63.759     | 3.469                             | 10.513        | 60.074     |
| 6         | 1.543               | 4.676         | 68.435     | 1.543                               | 4.676         | 68.435     | 2.759                             | 8.361         | 68.435     |

Extraction method: principal component analysis.

We performed principal component analysis (PCA) on the data to extract latent factors and factor rotation using the Varimax orthogonal rotation method. In our analysis, we used Kaiser standardization and considered variables with factor loading values below 0.3 as not significant and therefore not presented. Variables with factor loading values of 0.3 and above were considered to have sufficient explanatory power and were displayed in the results. In the rotated component matrix, each component mainly loads on a specific research variable, forming a clear factor structure. According to Table 5, it can be seen that based on the results of the factor analysis and the meaning of each item, the six public factors were named CSI, EE, SI, TCP, CTC, and WSR.

**Table 5.** Rotated component matrix.

| <b>Rotated Component Matrix</b> |           |   |   |   |   |   |
|---------------------------------|-----------|---|---|---|---|---|
|                                 | Component |   |   |   |   |   |
|                                 | 1         | 2 | 3 | 4 | 5 | 6 |
| CSI6                            | 0.831     |   |   |   |   |   |
| CSI8                            | 0.822     |   |   |   |   |   |
| CSI3                            | 0.818     |   |   |   |   |   |
| CSI4                            | 0.776     |   |   |   |   |   |
| CSI5                            | 0.730     |   |   |   |   |   |
| CSI1                            | 0.694     |   |   |   |   |   |
| CSI2                            | 0.689     |   |   |   |   |   |
| CSI7                            | 0.681     |   |   |   |   |   |

**Table 5.** *Cont.*

| Rotated Component Matrix |           |       |       |       |       |       |
|--------------------------|-----------|-------|-------|-------|-------|-------|
|                          | Component |       |       |       |       |       |
|                          | 1         | 2     | 3     | 4     | 5     | 6     |
| EE3                      |           | 0.827 |       |       |       |       |
| EE6                      |           | 0.772 |       |       |       |       |
| EE2                      |           | 0.761 |       |       |       |       |
| EE4                      |           | 0.745 |       |       |       |       |
| EE5                      |           | 0.685 |       |       |       |       |
| EE1                      |           | 0.685 |       |       |       |       |
| SI5                      |           |       | 0.842 |       |       |       |
| SI4                      |           |       | 0.814 |       |       |       |
| SI1                      |           |       | 0.790 |       |       |       |
| SI3                      |           |       | 0.758 |       |       |       |
| SI2                      |           |       | 0.753 |       |       |       |
| TCP5                     |           |       |       | 0.815 |       |       |
| TCP4                     |           |       |       | 0.808 |       |       |
| TCP1                     |           |       |       | 0.790 |       |       |
| TCP2                     |           |       |       | 0.761 |       |       |
| TCP3                     |           |       |       | 0.746 |       |       |
| CTC4                     |           |       |       |       | 0.826 |       |
| CTC3                     |           |       |       |       | 0.793 |       |
| CTC2                     |           |       |       |       | 0.749 |       |
| CTC1                     |           |       |       |       | 0.736 |       |
| CTC5                     |           |       |       |       | 0.692 |       |
| WSR2                     |           |       |       |       |       | 0.782 |
| WSR4                     |           |       |       |       |       | 0.760 |
| WSR1                     |           |       |       |       |       | 0.746 |
| WSR3                     |           |       |       |       |       | 0.732 |

Extraction method: principal component analysis. Rotation method: Varimax with Kaiser normalization. Rotation converged in six iterations.

#### 4.3. Validation Factor Analysis

The validity analysis includes differential validity analysis and convergent validity analysis. The measure of discriminant validity is the average of variance extracted (AVE), which reflects the size of the differences between potential variables. Convergent validity reflects the correlation between the items within the latent variables and requires that Pearson's correlation coefficient between the latent variables is less than the square root of the AVE to construct validity [126]. This study used AMOS 24. 0 to fit the structural equation model to the questionnaire data, and the main fitting indexes and criteria are shown in Table 6, which shows that all the indexes are within a reasonable range, so the model fit passes.

**Table 6.** Results of model fit test.

| Model Fit | Adaptation Criteria | Model Fit Value | Degree of Fit |
|-----------|---------------------|-----------------|---------------|
| Cmin/df   | <3                  | 2.043           | Accept        |
| GFI       | >0.8                | 0.896           | Accept        |
| RMSEA     | <0.05               | 0.045           | Accept        |
| NFI       | >0.9                | 0.91            | Accept        |
| IFI       | >0.9                | 0.952           | Accept        |
| RMR       | <0.05               | 0.027           | Accept        |
| TLI       | >0.9                | 0.947           | Accept        |
| CFI       | >0.9                | 0.951           | Accept        |

From the results of the convergent validity analysis in Table 7, it can be seen that the factor loadings obtained from the observed variables are greater than 0.6, and the

$p$ -values of all the topics are less than 0.001, which is significant. Compositional Reliability (Composite Reliability) indicates the consistency of the questions within the dimension and generally requires CR to be greater than 0.7. Convergent Validity (Convergent Validity) AVE is the average explanatory power of the dimension for the questions and generally requires AVE to be greater than 0.50 [127]. As can be seen in the following table, the scale passes the structural validity test.

**Table 7.** Convergent validity results.

| Research Variable | Measure Variables | Estimate | Std. Estimate | S.E.  | C.R.   | $p$ | AVE   | CR    |
|-------------------|-------------------|----------|---------------|-------|--------|-----|-------|-------|
| SI                | SI1               | 1        | 0.815         |       |        |     |       |       |
|                   | SI2               | 0.908    | 0.786         | 0.046 | 19.865 | *** |       |       |
|                   | SI3               | 0.906    | 0.769         | 0.047 | 19.276 | *** | 0.654 | 0.904 |
|                   | SI4               | 1.001    | 0.821         | 0.047 | 21.08  | *** |       |       |
|                   | SI5               | 0.829    | 0.851         | 0.037 | 22.127 | *** |       |       |
| EE                | EE1               | 1        | 0.695         |       |        |     |       |       |
|                   | EE2               | 1.139    | 0.732         | 0.075 | 15.226 | *** |       |       |
|                   | EE3               | 1.186    | 0.838         | 0.069 | 17.2   | *** |       |       |
|                   | EE4               | 1.005    | 0.749         | 0.065 | 15.557 | *** | 0.582 | 0.893 |
|                   | EE5               | 0.892    | 0.739         | 0.058 | 15.359 | *** |       |       |
|                   | EE6               | 1.059    | 0.815         | 0.063 | 16.784 | *** |       |       |
| TCP               | TCP1              | 1        | 0.772         |       |        |     |       |       |
|                   | TCP2              | 1.025    | 0.755         | 0.059 | 17.363 | *** |       |       |
|                   | TCP3              | 0.916    | 0.72          | 0.056 | 16.451 | *** | 0.606 | 0.885 |
|                   | TCP4              | 1.084    | 0.834         | 0.056 | 19.403 | *** |       |       |
|                   | TCP5              | 0.807    | 0.806         | 0.043 | 18.714 | *** |       |       |
| WSR               | WSR1              | 1        | 0.759         |       |        |     |       |       |
|                   | WSR2              | 1.095    | 0.798         | 0.063 | 17.368 | *** |       |       |
|                   | WSR3              | 1.354    | 0.79          | 0.079 | 17.221 | *** | 0.589 | 0.851 |
|                   | WSR4              | 0.999    | 0.72          |       |        |     |       |       |
| CTC               | CTC1              | 1        | 0.8           |       |        |     |       |       |
|                   | CTC2              | 1        | 0.811         | 0.05  | 20.042 | *** |       |       |
|                   | CTC3              | 0.948    | 0.796         | 0.048 | 19.588 | *** | 0.632 | 0.896 |
|                   | CTC4              | 0.79     | 0.827         | 0.038 | 20.57  | *** |       |       |
|                   | CTC5              | 0.803    | 0.737         | 0.045 | 17.765 | *** |       |       |
| CSI               | CSI1              | 1        | 0.668         |       |        |     |       |       |
|                   | CSI2              | 1.121    | 0.717         | 0.077 | 14.654 | *** |       |       |
|                   | CSI3              | 1.293    | 0.84          | 0.077 | 16.792 | *** |       |       |
|                   | CSI4              | 1.377    | 0.809         | 0.085 | 16.275 | *** |       |       |
|                   | CSI5              | 1.18     | 0.741         | 0.078 | 15.089 | *** | 0.594 | 0.921 |
|                   | CSI6              | 1.06     | 0.864         | 0.062 | 17.178 | *** |       |       |
|                   | CSI7              | 0.867    | 0.663         | 0.063 | 13.68  | *** |       |       |
|                   | CSI8              | 1.271    | 0.836         | 0.076 | 16.728 | *** |       |       |

Note: \*\*\*  $p < 0.001$ .

As shown in Table 8, where the diagonal bold font is the AVE open root value and the lower triangle is the Pearson correlation for the dimension, the AVE open root value is greater than the correlation for the other constructs, and thus, differential validity holds.

**Table 8.** Results of distinguishing validity.

| Research Variable | SI           | EE           | TCP          | WSR          | CTC          | CSI          |
|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| SI                | <b>0.809</b> |              |              |              |              |              |
| EE                | 0.497 ***    | <b>0.763</b> |              |              |              |              |
| TCP               | 0.349 ***    | 0.434 ***    | <b>0.778</b> |              |              |              |
| WSR               | 0.474 ***    | 0.438 ***    | 0.367 ***    | <b>0.767</b> |              |              |
| CTC               | 0.470 ***    | 0.497 ***    | 0.450 ***    | 0.571 ***    | <b>0.795</b> |              |
| CSI               | 0.415 ***    | 0.439 ***    | 0.391 ***    | 0.470 ***    | 0.471 ***    | <b>0.771</b> |

Note: The bolded part of the diagonal is the square root of the AVE, \*\*\*  $p < 0.001$ .

#### 4.4. Common Deviation Test

The Harman one-way test was used to test for common method bias. From the results of Table 9, it was found that six factors had eigenvalues  $> 1$ , and the variation explained by the first factor was 34.664%. The critical criterion of 40% was not reached. Taken together, most of the model fit indicators met the standard full factorial model fit status well, indicating that there is indeed no common method bias in this study.

**Table 9.** Common method bias test.

| Total Variance Explained |                   |               |              |                                     |               |              |
|--------------------------|-------------------|---------------|--------------|-------------------------------------|---------------|--------------|
| Component                | Nital Eigenvalues |               |              | Extraction Sums of Squared Loadings |               |              |
|                          | Total             | % of Variance | Cumulative % | Total                               | % of Variance | Cumulative % |
| 1                        | 11.439            | 34.664        | 34.664       | 11.439                              | 34.664        | 34.664       |
| 2                        | 2.915             | 8.833         | 43.497       | 2.915                               | 8.833         | 43.497       |
| 3                        | 2.491             | 7.549         | 51.046       | 2.491                               | 7.549         | 51.046       |
| 4                        | 2.226             | 6.746         | 57.792       | 2.226                               | 6.746         | 57.792       |
| 5                        | 1.969             | 5.966         | 63.759       | 1.969                               | 5.966         | 63.759       |
| 6                        | 1.543             | 4.676         | 68.435       | 1.543                               | 4.676         | 68.435       |

Extraction method: principal component analysis.

#### 4.5. Correlation Analysis

As can be seen from the results of correlation analysis in Table 10, all of the variables involved in this study show significance among them, and the values of correlation coefficients are greater than 0, which means that there is a significant positive correlation among all variables.

**Table 10.** Correlation analysis.

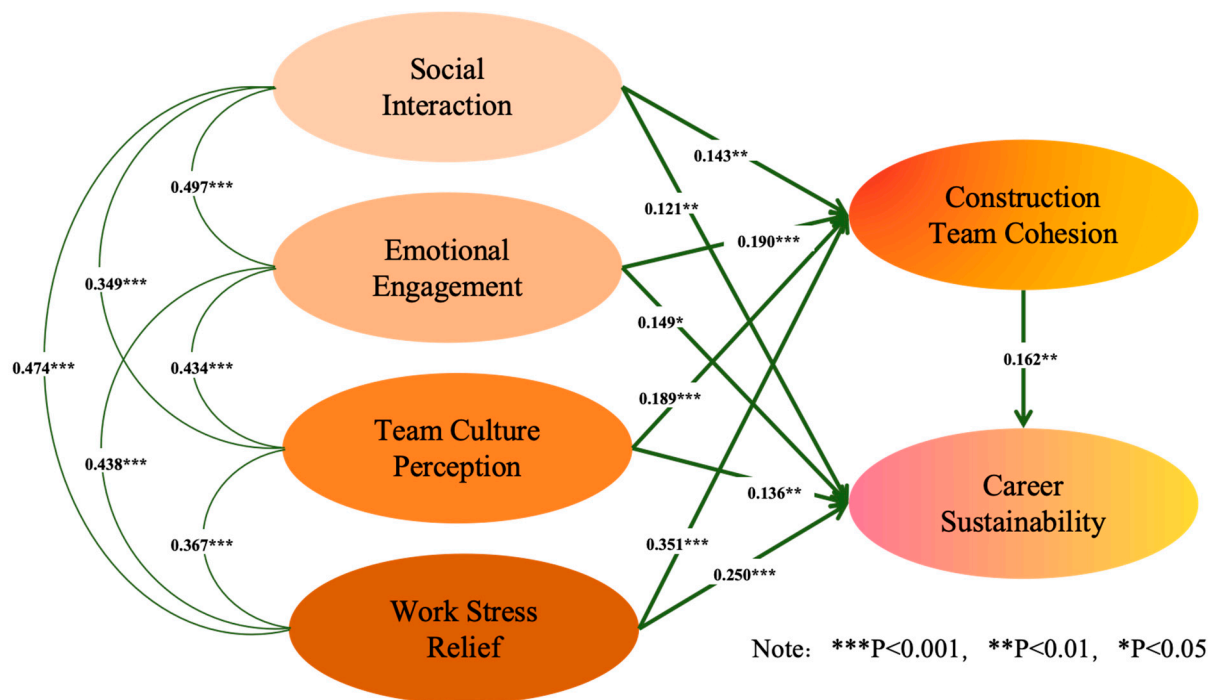
| Correlations |          |          |          |          |          |     |
|--------------|----------|----------|----------|----------|----------|-----|
|              | SI       | EE       | TCP      | WSR      | CTC      | CSI |
| SI           | 1        |          |          |          |          |     |
| EE           | 0.451 ** | 1        |          |          |          |     |
| TCP          | 0.317 ** | 0.403 ** | 1        |          |          |     |
| WSR          | 0.422 ** | 0.369 ** | 0.332 ** | 1        |          |     |
| CTC          | 0.431 ** | 0.444 ** | 0.411 ** | 0.510 ** | 1        |     |
| CSI          | 0.395 ** | 0.404 ** | 0.372 ** | 0.449 ** | 0.443 ** | 1   |

Note: \*\*  $p < 0.01$ .

#### 4.6. Path Analysis

The latent variable factor path model for CSI, EE, SI, TCP, CTC, and WSR was constructed, and the results are shown in Figure 2 for the path relationship between variables, and the standardized coefficients of each path in Figure 3.

Firstly, the main effect of the whole sample was tested, all the paths were significant, and the results are shown in Table 11. Among the paths affecting CSI, EE, SI, TCP, and CTC, WSR had a significant positive effect on CSI, the coefficients of significance of  $p$  were less than 0.05, the standardized regression coefficients were all greater than 0, and the hypotheses were all valid.



**Figure 3.** Plot of path relationships between variables and standardized coefficients for each path.

**Table 11.** SEM path results.

| Path |      |     | Estimate | Std. Estimate | S.E.  | C.R.  | <i>p</i> | Results |
|------|------|-----|----------|---------------|-------|-------|----------|---------|
| CTC  | <--- | SI  | 0.157    | 0.143         | 0.055 | 2.852 | 0.004    | T       |
| CTC  | <--- | EE  | 0.267    | 0.19          | 0.073 | 3.673 | ***      | T       |
| CTC  | <--- | TCP | 0.233    | 0.189         | 0.058 | 4.012 | ***      | T       |
| CTC  | <--- | WSR | 0.438    | 0.351         | 0.066 | 6.618 | ***      | T       |
| CSI  | <--- | CTC | 0.124    | 0.162         | 0.045 | 2.755 | 0.006    | T       |
| CSI  | <--- | SI  | 0.101    | 0.121         | 0.044 | 2.295 | 0.022    | T       |
| CSI  | <--- | EE  | 0.16     | 0.149         | 0.059 | 2.737 | 0.006    | T       |
| CSI  | <--- | TCP | 0.128    | 0.136         | 0.047 | 2.724 | 0.006    | T       |
| CSI  | <--- | WSR | 0.196    | 0.205         | 0.056 | 3.523 | ***      | T       |

Note: The arrow direction is the path direction, \*\*\*  $p < 0.001$ .

#### 4.7. Tests for Mediating Effects

This study used the bootstrap method of Amos24.0 software to validate the mediating effects under study. The direct effect is the direct effect of the individual independent variables on the dependent variable, expressed as the path coefficient. The mediating effect is the effect on CSI behavior through the mediating variable, which is a mediating variable. The magnitude of the mediating effect is equal to the product of the path coefficients.

The bootstrap estimation method was used to validate the mediation effects, and the two estimation methods, Bias-corrected and percentile, indicated that all mediation effects were valid if they did not include 0 in the 95% confidence intervals. As shown in Table 12, the total, direct, and indirect effects of CTC in EE, SI, TCP, CTC, WSR, and CSI are significant, and the hypothesis is valid if both estimation methods, Bias-corrected and percentile, include 0 in the 95% confidence intervals.

**Table 12.** Mediated effect test.

| Path              | Effect Size      |                |               | Mediation Effect |       |            |       |
|-------------------|------------------|----------------|---------------|------------------|-------|------------|-------|
|                   | Mediation Effect | Direct Effects | Total Effects | Bias-Corrected   |       | Percentile |       |
|                   |                  |                |               | Lower            | Upper | Lower      | Upper |
| SI => CTC => CSI  | 0.019            | 0.101          | 0.121         | 0.004            | 0.046 | 0.003      | 0.042 |
| EE => CTC => CSI  | 0.033            | 0.16           | 0.194         | 0.008            | 0.075 | 0.007      | 0.072 |
| TCP => CTC => CSI | 0.029            | 0.128          | 0.157         | 0.009            | 0.062 | 0.007      | 0.057 |
| WSR => CTC => CSI | 0.054            | 0.196          | 0.25          | 0.018            | 0.103 | 0.017      | 0.101 |

## 5. Discussion

### 5.1. Direct Effects

This study powerfully confirms the significant positive impact of team leisure sports experiences on construction workers' occupational commitment (H1), while also providing a deeper understanding of how specific factors—social interaction quality, emotional engagement, team culture perception, and work stress relief—further influence occupational commitment (H2–H5). The results decisively show that all four dimensions of team leisure sports experiences have a substantial and positive effect on occupational commitment. This not only reinforces the idea that engaging in team leisure sports can significantly boost the professional commitment of construction workers but also reveals the precise mechanisms at play.

### 5.2. Mediating Effect

The findings clearly indicate that construction team cohesion plays a significant mediating role in the pathway through which team recreational sports experiences influence career commitment (H6). Moreover, team cohesion also mediates the effects of social interaction quality, emotional engagement, team culture perception, and work stress relief on career commitment (H6a–H6d). This emphasizes that team cohesion, as a central element in team dynamics, is the key mechanism through which recreational sports experiences positively affect career commitment. Through the enhancement of team cohesion, improvements in social interaction quality and team culture perception can further strengthen workers' emotional attachment and responsibility to their careers. Similarly, emotional engagement and work stress relief, mediated by cohesion, can more effectively enhance occupational commitment.

### 5.3. Research Comparison

Compared to previous studies, this research further deepens the understanding of the mechanism behind occupational commitment in the construction industry. Previous studies have mainly focused on individual-level factors such as occupational stress and job satisfaction [128]. In contrast, this study explores the role of team activities and characteristics, revealing how team leisure sports experiences enhance team cohesion and, in turn, promote occupational commitment. This perspective broadens the scope of occupational commitment research and provides new practical insights for team management and career development. This finding aligns with research in other industries. For instance, Spatz points out that improving team building and communication can facilitate the shift from hierarchical management to a team-oriented culture, thereby boosting employee cohesion and commitment [129].

Similarly, research by Victoria and Femi (n.d.) highlights the importance of communication and trust among team members in achieving effective teamwork and enhancing work efficiency. These studies support the idea that team cohesion plays a crucial role

in strengthening occupational commitment [130]. Furthermore, the results of this study reinforce the positive impact of team leisure sports experiences on team effectiveness, which is consistent with conclusions from studies in other industries. For example, Kwon found in his meta-analysis that team-building interventions significantly improve team cohesion. However, this study uniquely emphasizes the critical role of team cohesion in alleviating work stress and enhancing occupational commitment in the specific context of the construction industry [131]. However, this article emphasizes the key role of team cohesion in relieving work stress and enhancing professional commitment in the specific context of the construction industry.

## 6. Research Conclusions

This study reveals the positive impact of team leisure sports experiences on construction workers' occupational commitment, with team cohesion playing a mediating role. Specifically, the four dimensions of team leisure sports experiences—quality of social interaction, emotional engagement, team culture perception, and work stress relief—have a significant and sustainable impact on construction workers by enhancing team cohesion. This study provides a new theoretical perspective on career sustainability in the construction industry, demonstrating the positive effect of team leisure sports activities on occupational commitment by enhancing team cohesion.

Furthermore, the findings of this study have practical implications for the construction industry. Given the high levels of work stress and occupational burnout faced by construction workers, team leisure sports activities not only help alleviate these issues but also strengthen workers' sense of collective belonging and professional loyalty, thereby improving work efficiency and team collaboration. The results provide actionable insights for industry leaders and managers, suggesting that promoting team leisure sports activities could enhance team cohesion and occupational commitment, leading to improved employee satisfaction and reduced turnover rates. Therefore, this approach could be a valuable strategy for enhancing employee well-being and organizational effectiveness in the construction sector.

## 7. Limitations and Outlook

Although this study thoroughly explored the relationship between team leisure sports experiences and construction workers' occupational sustainability and verified the mediating role of construction team cohesion, it is important to acknowledge certain limitations. First, the research sample was limited to the construction industry in specific cities in China, which may restrict the generalizability of the results. Future studies could expand the sample to include construction workers from various cultural contexts and regions to enhance the external validity of the findings. Second, this study relied on cross-sectional data, which limits the ability to establish causal relationships over time. We recommend that future research use longitudinal designs to examine the causal chain between the variables more robustly. Third, while the role of team cohesion as a mediator has been explored, the performance differences between various types of teams—such as project-based versus functional teams—have not been fully addressed. Future research could further investigate how cohesion functions differently in diverse team formats.

Despite these limitations, the findings have significant practical implications for the construction industry. By promoting team leisure sports activities, companies can enhance team cohesion, alleviate work stress, and improve the overall occupational commitment of construction workers, contributing to greater career sustainability and reduced turnover rates. These implications are vital for industry leaders and practitioners seeking effective strategies to enhance worker well-being and team performance. Future research can

build on these findings by refining the mechanisms underlying these effects and exploring the more complex interrelationships between team leisure sports experiences and occupational commitment.

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## References

1. Guilding, C.; Lamminmaki, D.; McManus, L. Staff turnover costs: In search of accountability. *Int. J. Hosp. Manag.* **2014**, *36*, 231–243. [\[CrossRef\]](#)
2. Rumawas, W. Employees' Turnover Intention in the construction Industry in Indonesia. *J. Constr. Dev. Ctries.* **2022**, *27*, 127–146. [\[CrossRef\]](#)
3. Ayodele, O.A.; Chang-Richards, A.; González, V. Factors affecting workforce turnover in the construction sector: A systematic review. *J. Constr. Eng. Manag.* **2020**, *146*, 03119010. [\[CrossRef\]](#)
4. Gyi, D.E.; Gibb, A.G.; Haslam, R.A. The quality of accident and health data in the construction industry: Interviews with senior managers. *Constr. Manag. Econ.* **1999**, *17*, 197–204. [\[CrossRef\]](#)
5. Esa, M.; Muniandy, P.; Noor NA, S.M. Awareness of mental health issues in malaysian construction industry. *J. Health Qual. Life* **2024**, *1*, 21–48. [\[CrossRef\]](#)
6. Burki, T. Mental health in the construction industry. *Lancet Psychiatry* **2018**, *5*, 303. [\[CrossRef\]](#) [\[PubMed\]](#)
7. Kraemer, R. Retaining Employees in the Construction Industry. Doctoral Dissertation, College of St. Scholastica, Duluth, MN, USA, 2008.
8. Boschman, J.S.; van der Molen, H.F.; Sluiter, J.K.; Frings-Dresen, M.H. Improving occupational health care for construction workers: A process evaluation. *BMC Public Health* **2013**, *13*, 218. [\[CrossRef\]](#) [\[PubMed\]](#)
9. Xu, S.; Ji, C. Study on the investment situation in leisure sports of electric power enterprise staff in Hebei Province. In *Sports Engineering and Computer Science*; CRC Press: Boca Raton, FL, USA, 2015; pp. 193–198.
10. Sattar, S.; Batool, S.Z.; Khan, S. Perception of recreational sports in reducing work-related stress: A case study of administrative staff of lcwu & iba sukkur. *Shield Res. J. Phys. Educ. Sports Sci.* **2021**, *16*, 63.
11. Zhang, Y.; Deng, S.; Chen, S.; Yao, Z.; Hou, Y.; Huang, Q.; Liu, Z. The Effect of Construction Workers' Work Resilience on Their Leisure Sports Participation: The Mediating Role of Safety and Health Awareness. *Buildings* **2024**, *14*, 2763. [\[CrossRef\]](#)
12. Raiden, A.B.; Dainty, A.R.; Neale, R.H. Current barriers and possible solutions to effective project team formation and deployment within a large construction organisation. *Int. J. Proj. Manag.* **2004**, *22*, 309–316. [\[CrossRef\]](#)
13. Schulz, A.S.; Bloom, J.; Kinnunen, U. Workaholism and daily energy management at work: Associations with self-reported health and emotional exhaustion. *Ind. Health* **2017**, *55*, 252–264. [\[CrossRef\]](#) [\[PubMed\]](#)
14. Lee, Y.; Dattilo, J.; Howard, D. The complex and dynamic nature of leisure experience. *J. Leis. Res.* **1994**, *26*, 195–211. [\[CrossRef\]](#)
15. Paredes-Saavedra, M.; Vallejos, M.; Huancahuire-Vega, S.; Morales-García, W.C.; Geraldo-Campos, L.A. Work Team Effectiveness: Importance of Organizational Culture, Work Climate, Leadership, Creative Synergy, and Emotional Intelligence in University Employees. *Adm. Sci.* **2024**, *14*, 280. [\[CrossRef\]](#)
16. Mercanoğlu, A.O.; Şimşek, K.Y. The impact of employee recreation on their respective productivity. *SAGE Open* **2023**, *13*, 21582440231196967. [\[CrossRef\]](#)
17. Galaz-Delgado, E.I.; Herrera, R.F.; Atencio, E.; Muñoz-La Rivera, F.; Biotto, C.N. Problems and challenges in the interactions of design teams of construction projects: A bibliometric study. *Buildings* **2021**, *11*, 461. [\[CrossRef\]](#)
18. Xie, L.L.; Luo, Z.; Zhao, X. Critical factors of construction workers' career promotion: Evidence from Guangzhou city. *Eng. Constr. Archit. Manag.* **2023**, *30*, 2334–2359. [\[CrossRef\]](#)

19. van den Groenendaal, S.M.E.; Akkermans, J.; Fleisher, C.; Kooij, D.T.; Poell, R.F.; Freese, C. A qualitative exploration of solo self-employed workers' career sustainability. *J. Vocat. Behav.* **2022**, *134*, 103692. [\[CrossRef\]](#)
20. Sokas, R.K.; Dong, X.S.; Cain, C.T. Building a sustainable construction workforce. *Int. J. Environ. Res. Public Health* **2019**, *16*, 4202. [\[CrossRef\]](#) [\[PubMed\]](#)
21. Bozionelos, N.; Lin, C.H.; Lee, K.Y. Enhancing the sustainability of employees' careers through training: The roles of career actors' openness and of supervisor support. *J. Vocat. Behav.* **2020**, *117*, 103333. [\[CrossRef\]](#)
22. Oludeyi, O.S. A review of literature on work environment and work commitment: Implication for future research in citadels of learning. *J. Hum. Resour. Manag.* **2015**, *18*, 32–46.
23. Davidescu, A.A.; Apostu, S.A.; Paul, A.; Casuneanu, I. Work flexibility, job satisfaction, and job performance among Romanian employees—Implications for sustainable human resource management. *Sustainability* **2020**, *12*, 6086. [\[CrossRef\]](#)
24. Escamilla, E.F.; Ostadalimakhmalbaf, M. Capacity building for sustainable workforce in the construction industry. *Prof. Constr.* **2016**, *41*, 51–71.
25. Kim, J.S.; Park, H.S.; Oh, S.S. An analysis of the characteristics of sports activities and injury experiences of leisure sports participants. *J. Exerc. Rehabil.* **2018**, *14*, 407. [\[CrossRef\]](#) [\[PubMed\]](#)
26. Hou, Y.; Jiang, H.; Gao, Y.; Huang, Q.; Yang, L. Professional Sports Event Attendance and Construction Workers' Job Burnout: The Mediating Role of Leisure Spillover. *Buildings* **2024**, *14*, 3251. [\[CrossRef\]](#)
27. Joubert, Y.T.; De Beer, J.J. Benefits of team sport for organisations. *S. Afr. J. Res. Sport Phys. Educ. Recreat.* **2011**, *33*, 59–72.
28. Zhao, Z.; Xu, Z.; Zhang, J.; Tan, S. Exploring Recovery Exercises to Enhance Construction Workers' Willingness for Career Continuity under the Dual-Process Theory: A Perspective from Physical Exercise. *Buildings* **2024**, *14*, 3287. [\[CrossRef\]](#)
29. Sarason, I.G. (Ed.) *Social Support: Theory, Research and Applications*; Springer Science & Business Media: Berlin/Heidelberg, Germany, 2013; Volume 24.
30. Lakey, B.; Cohen, S. Social support and theory. *Soc. Support Meas. Interv. Guide Health Soc. Sci.* **2000**, *29*, 29–49.
31. Smith-Lovin, L.; Heise, D.R. Analyzing Social Interaction. In *Advances in Affect Control Theory, Gordon and Breach*; Routledge: London, UK, 1988.
32. Shinn, M.; Lehmann, S.; Wong, N.W. Social interaction and social support. *J. Soc. Issues* **1984**, *40*, 55–76. [\[CrossRef\]](#)
33. Kahn, W.A. Meaningful connections: Positive relationships and attachments at work. In *Exploring Positive Relationships at Work*; Psychology Press: London, UK, 2017; pp. 189–206.
34. Cross, N.; Cross, A.C. Observations of teamwork and social processes in design. *Des. Stud.* **1995**, *16*, 143–170. [\[CrossRef\]](#)
35. Driskell, J.E.; Salas, E.; Driskell, T. Foundations of teamwork and collaboration. *Am. Psychol.* **2018**, *73*, 334. [\[CrossRef\]](#)
36. Heaney, C.A.; Price, R.H.; Rafferty, J. Increasing coping resources at work: A field experiment to increase social support, improve work team functioning, and enhance employee mental health. *J. Organ. Behav.* **1995**, *16*, 335–352. [\[CrossRef\]](#)
37. Joubert, Y.T.; De Beer, J.J. Experiences of employees who participate in organisational team sport activities. *J. Emerg. Trends Econ. Manag. Sci.* **2010**, *1*, 51–59.
38. Gao, L.; Luo, X.; Yang, W.; Zhang, N.; Deng, X. Relationship between social support and repatriation intention of expatriates in international construction projects. *Eng. Constr. Archit. Manag.* **2023**, *30*, 3292–3309. [\[CrossRef\]](#)
39. Singh, A.; Gupta, B. Job involvement, organizational commitment, professional commitment, and team commitment: A study of generational diversity. *Benchmarking Int. J.* **2015**, *22*, 1192–1211. [\[CrossRef\]](#)
40. McFadden, P.; Ross, J.; Moriarty, J.; Mallett, J.; Schroder, H.; Ravalier, J.; Gillen, P. The role of coping in the wellbeing and work-related quality of life of UK health and social care workers during COVID-19. *Int. J. Environ. Res. Public Health* **2021**, *18*, 815. [\[CrossRef\]](#) [\[PubMed\]](#)
41. Huang, S.Y.; Huang, C.H.; Chang, T.W. A new concept of work engagement theory in cognitive engagement, emotional engagement, and physical engagement. *Front. Psychol.* **2022**, *12*, 663440. [\[CrossRef\]](#) [\[PubMed\]](#)
42. Mitropoulos, P.; Memarian, B. Team processes and safety of workers: Cognitive, affective, and behavioral processes of construction crews. *J. Constr. Eng. Manag.* **2012**, *138*, 1181–1191. [\[CrossRef\]](#)
43. Jamshed, S.; Majeed, N. Relationship between team culture and team performance through lens of knowledge sharing and team emotional intelligence. *J. Knowl. Manag.* **2019**, *23*, 90–109. [\[CrossRef\]](#)
44. Minárová, S. Engagement, loyalty, organizational commitment, job satisfaction and motivation of public administrations managers. *Soc. Econ. Rev.* **2018**, *16*, 53–66.
45. Yinusa, D.; Ogoun, J. Exploring Communication Practices as Drivers of Employee Loyalty and Engagement. *J. Policy Options* **2024**, *7*, 1–11.
46. Nguyen, P.V.; Nguyen, L.T.; Doan, K.N.; Tran, H.Q. Enhancing emotional engagement through relational contracts, management receptiveness, and employee commitment as a stimulus for job satisfaction and job performance in the public sector. *Equilibrium. Q. J. Econ. Econ. Policy* **2021**, *16*, 203–224. [\[CrossRef\]](#)
47. Mróz, J.; Kaleta, K. Relationships between personality, emotional labor, work engagement and job satisfaction in service professions. *Int. J. Occup. Med. Environ. Health* **2016**, *29*, 767–782. [\[CrossRef\]](#) [\[PubMed\]](#)

48. Zhang, W.; Fei, D. Differentiation in emotional investments in work groups among different social status of construction industry practitioners: A perspective from the social exchange theory. *Comput. Intell. Neurosci.* **2022**, 2022, 9306167. [\[CrossRef\]](#) [\[PubMed\]](#)
49. Miao, J.; Hu, H.; Wang, F.; Xie, B. Positive Affectivity as a Motivator: How Does It Influence Employees' Sustainable Careers. *Sustainability* **2023**, *15*, 12662. [\[CrossRef\]](#)
50. Osborne, S.; Hammoud, M.S. Effective employee engagement in the workplace. *Int. J. Appl. Manag. Technol.* **2017**, *16*, 4. [\[CrossRef\]](#)
51. Duchon, D.; Plowman, D.A. Nurturing the spirit at work: Impact on work unit performance. *Leadersh. Q.* **2005**, *16*, 807–833. [\[CrossRef\]](#)
52. Helms, M.M.; Stern, R. Exploring the factors that influence employees' perceptions of their organisation's culture. *J. Manag. Med.* **2001**, *15*, 415–429. [\[CrossRef\]](#) [\[PubMed\]](#)
53. Shin, Y.; Kim, M.; Choi, J.N.; Lee, S.H. Does team culture matter? Roles of team culture and collective regulatory focus in team task and creative performance. *Group Organ. Manag.* **2016**, *41*, 232–265. [\[CrossRef\]](#)
54. Cole, J.; Martin, A.J. Developing a winning sport team culture: Organizational culture in theory and practice. *Sport Soc.* **2018**, *21*, 1204–1222. [\[CrossRef\]](#)
55. Waller, L. Fostering a sense of belonging in the workplace: Enhancing well-being and a positive and coherent sense of self. In *The Palgrave Handbook of Workplace Well-Being*; Palgrave Macmillan: Cham, Switzerland, 2020; pp. 1–27. [\[CrossRef\]](#)
56. Barna, B.; Fodor, S. Gamification's impact on employee engagement: Enhancing employee well-being with a cloud based gamified team-building application. In Proceedings of the 2018 6th International Conference on Future Internet of Things and Cloud Workshops (FiCloudW), Barcelona, Spain, 6–8 August 2018; IEEE: Piscataway, NJ, USA, 2018; pp. 203–208.
57. Tian, L.; Li, Y.; Li, P.P.; Bodla, A.A. Leader–member skill distance, team cooperation, and team performance: A cross-culture study in a context of sport teams. *Int. J. Intercult. Relat.* **2015**, *49*, 183–197. [\[CrossRef\]](#)
58. Fong, P.S.; Lung, B.W. Interorganizational teamwork in the construction industry. *J. Constr. Eng. Manag.* **2007**, *133*, 157–168. [\[CrossRef\]](#)
59. Ogwueleka, A.C.; Ikediashi, D.I. Exploring the effects of positive organizational behaviour (POB) models on occupational eustress amongst construction employees. *J. Constr. Bus. Manag.* **2021**, *5*, 38–46. [\[CrossRef\]](#)
60. Barling, J.; Kelloway, E.K.; Frone, M.R. (Eds.) *Handbook of Work Stress*; Sage publications: Thousand Oaks, CA, 2004.
61. Rusli, B.N.; Edimansyah, B.A.; Naing, L. Working conditions, self-perceived stress, anxiety, depression and quality of life: A structural equation modelling approach. *BMC Public Health* **2008**, *8*, 48. [\[CrossRef\]](#)
62. Parker, S.L.; Laurie, K.R.; Newton, C.J.; Jimmieson, N.L. Regulatory focus moderates the relationship between task control and physiological and psychological markers of stress: A work simulation study. *Int. J. Psychophysiol.* **2014**, *94*, 390–398. [\[CrossRef\]](#)
63. Kyrou, I.; Tsigos, C. Stress hormones: Physiological stress and regulation of metabolism. *Curr. Opin. Pharmacol.* **2009**, *9*, 787–793. [\[CrossRef\]](#)
64. Cheng, T.M.; Chang, S.Y.; Lien, W.H. Work-leisure balance: Perceived organizational leisure support. *J. Leis. Res.* **2021**, *52*, 202–226. [\[CrossRef\]](#)
65. Patricia, O. Improving interpersonal relationship in workplaces. *J. Res. Method Educ.* **2015**, *5*, 115–125.
66. Bhatt, D.; Kashyap, K.; Chandravanshi, J.; Kumar, A. Exercise, Yoga and Meditation Positive Impact on those Suffering from Depression and Anxiety Disorders. *Eur. J. Cardiovasc. Med.* **2024**, *14*, 124.
67. Tsatsoulis, A.; Fountoulakis, S. The protective role of exercise on stress system dysregulation and comorbidities. *Ann. N. Y. Acad. Sci.* **2006**, *1083*, 196–213. [\[CrossRef\]](#)
68. Tran, C.T.; Tran, H.T.; Nguyen, H.T.; Mach, D.N.; Phan, H.S.; Mujtaba, B.G. Stress management in the modern workplace and the role of human resource professionals. *Bus. Ethics Leadersh.* **2020**, *4*, 26–40. [\[CrossRef\]](#)
69. Berger, R.; Czakert, J.P. Stress management and resilience building. In *Organisational Excellence and Resilience: Stress Management as a Component of a Sustainable Corporate Development Strategy*; Springer: Cham, Switzerland, 2022; pp. 63–88.
70. Udayar, S.; Urbanaviciute, I.; Maggiori, C.; Rossier, J. Does promotion foster career sustainability? A comparative three-wave study on the role of promotion in work stress, job satisfaction, and career-related performance. *Int. J. Educ. Vocat. Guid.* **2024**, 1–27. [\[CrossRef\]](#)
71. Clark, M.M.; Soyering, J.E.; Jenkins, S.M.; Daniels, D.C.; Berkland, B.E.; Werneburg, B.L.; Olsen, K.D. The integration of studio cycling into a worksite stress management programme. *Stress Health* **2014**, *30*, 166–176. [\[CrossRef\]](#) [\[PubMed\]](#)
72. Jafari, F.; Ruch, W.; Siadati, S.; Esmaili, S. Applying strength-based therapeutic recreation for dealing with job stress, work–family conflict, and family–work conflict. *J. Employ. Couns.* **2024**, *61*, 185–198. [\[CrossRef\]](#)
73. Berger, R.; Dalluege, C.A.; Franz, H.W. (Eds.) *Organisational Excellence and Resilience: Stress Management as a Component of a Sustainable Corporate Development Strategy*; Springer Nature: Cham, Switzerland, 2021.
74. Widmeyer, W.N.; Martens, R. When cohesion predicts performance outcome in sport. *Research Quarterly. Am. Alliance Health Phys. Educ. Recreat.* **1978**, *49*, 372–380. [\[CrossRef\]](#)
75. Robbins, B. Perceived Workplace Adversity and the Psychological Wellbeing of Professional Team Sport Athletes: Examining the Impacts and Implications. Doctoral Dissertation, Swinburne University of Technology, Melbourne, Australia, 2020.

76. Al Ahmed MI, A. The Role of Recreational Sport Activities in Improving the Quality of Life for University Students. *Int. J. Hum. Mov. Sports Sci.* **2024**, *12*, 183–200. [[CrossRef](#)]
77. Ifeanyi, T.T.; Ejiogu, S.A.; Obijiaku, C.P.; Ihim, M.C.; Oguoguo, I.A.; Nwarata, B.C.; Edibo, M.D. Group Cohesion and Organizational Performance in Imo State University, Nigeria. *Int. J. Public Adm. Manag. Res.* **2024**, *10*, 14–23.
78. Senécal, J.; Loughhead, T.M.; Bloom, G.A. A season-long team-building intervention: Examining the effect of team goal setting on cohesion. *J. Sport Exerc. Psychol.* **2008**, *30*, 186–199. [[CrossRef](#)] [[PubMed](#)]
79. Scotto di Luzio, S.; Isoard-Gautheur, S.; Ginoux, C.; Sarrazin, P. Exploring the relationship between sense of community and vigor in workplace community: The role of needs satisfaction and physical activity. *J. Community Psychol.* **2019**, *47*, 1419–1432. [[CrossRef](#)] [[PubMed](#)]
80. Li, Y.; Aumeboonsuke, V. Exploring the Nexus of Organizational Behavior and Team Dynamics: An Empirical Analysis of Factors Influencing Social Cohesion and Team Attractiveness. *Kurd. Stud.* **2023**, *11*, 2633–2648.
81. Zhang, Q.; Hao, S. Construction project manager's emotional intelligence and team effectiveness: The mediating role of team cohesion and the moderating effect of time. *Front. Psychol.* **2022**, *13*, 845791. [[CrossRef](#)]
82. Kram, K.E.; Cherniss, C. Developing emotional competence through relationships at work. In *The Emotionally Intelligent Workplace: How to Select for, Measure, and Improve Emotional Intelligence in Individuals, Groups, and Organizations*; John Wiley & Sons: Hoboken, NJ, USA, 2001; pp. 254–285.
83. Black, J.; Kim, K.; Rhee, S.; Wang, K.; Sakchutchawan, S. Self-efficacy and emotional intelligence: Influencing team cohesion to enhance team performance. *Team Perform. Manag. Int. J.* **2019**, *25*, 100–119. [[CrossRef](#)]
84. Eldadi, O.; Sharon-David, H.; Tenenbaum, G. Interpersonal emotions in team sports: Effects of emotional contagion on emotional, social and performance outcomes of a team. *Sci. J. Sport Perform.* **2023**, *2*, 473–491. [[CrossRef](#)]
85. Fredrickson, B.L. The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *Am. Psychol.* **2001**, *56*, 218. [[CrossRef](#)]
86. Zhou, L.; Li, S.; Zhou, L.; Tao, H.; Bouckennooghe, D. The effects of perceived organizational support on employees' sense of job insecurity in times of external threats: An empirical investigation under lockdown conditions in China. *Asian Bus. Manag.* **2023**, *22*, 1567–1591. [[CrossRef](#)]
87. Zhang, H.; Du, L.; Jiang, Z. "Loyalty to organizations" or "loyalty to supervisors"? Research on differential leadership and employee loyalty behavior: A perspective of insiders and outsiders. *Front. Psychol.* **2022**, *13*, 971624. [[CrossRef](#)] [[PubMed](#)]
88. Fusaroli, R.; Bjørndahl, J.S.; Roepstorff, A.; Tylén, K. Physiological entrainment and behavioral coordination in a collective, creative construction task. In Proceedings of the Annual Meeting of the Cognitive Science Society, Pasadena, CA, USA, 22–25 July 2015; Volume 37.
89. Cohn, M.A.; Fredrickson, B.L.; Brown, S.L.; Mikels, J.A.; Conway, A.M. Happiness unpacked: Positive emotions increase life satisfaction by building resilience. *Emotion* **2009**, *9*, 361. [[CrossRef](#)]
90. Saboor, S.; Ahmed, V. Investigating the Underpinning Criteria of Employees' Social Sustainability and Their Impact on Job Satisfaction in the UAE Construction Sector. *Sustainability* **2024**, *16*, 11307. [[CrossRef](#)]
91. Pohl, S.; Battistelli, A.; Djediat, A.; Andela, M. Emotional support at work: A key component for nurses' work engagement, their quality of care and their organizational citizenship behaviour. *Int. J. Afr. Nurs. Sci.* **2022**, *16*, 100424. [[CrossRef](#)]
92. Liu, Z.; Chen, C.; Yan, X.; Wu, J.; Long, L. Analysis of the chain-mediated effects of nurses' sense of professional gain and sense of professional mission between psychological resilience and work engagement in 10 general hospitals in Sichuan province. *Front. Psychol.* **2024**, *15*, 1309901. [[CrossRef](#)] [[PubMed](#)]
93. Xanthopoulou, D.; Bakker, A.B.; Fischbach, A. Work engagement among employees facing emotional demands. *J. Pers. Psychol.* **2013**, *12*, 74–84. [[CrossRef](#)]
94. Huang, C.C. Knowledge sharing and group cohesiveness on performance: An empirical study of technology R&D teams in Taiwan. *Technovation* **2009**, *29*, 786–797.
95. Adegbite, W.M.; Hoole, C. Modelling female nurses' career sustainability towards career competency development and teamwork using self-efficacy as a mediator. *Soc. Sci. Humanit. Open* **2024**, *10*, 100908. [[CrossRef](#)]
96. Kroll, T.L. *The Influence of Culture on Cohesion in Work Teams*; Trevecca Nazarene University: Nashville, TN, USA, 2018.
97. Luo, Y.; Barnes, J.A. Assessing employees' belongingness for long-term sustainability of the company: A case of G Company, Bangkok, Thailand. *ABAC ODI Journal Vision. Action. Outcome* **2020**, *7*, 87.
98. Tabassi, A.A.; Ramli, M.; Roufehaei, K.M.; Tabasi, A.A. Team development and performance in construction design teams: An assessment of a hierarchical model with mediating effect of compensation. *Constr. Manag. Econ.* **2014**, *32*, 932–949. [[CrossRef](#)]
99. Chih, Y.Y.; Kiazad, K.; Cheng, D.; Capezio, A.; D Restubog, S.L. Does organizational justice matter? Implications for construction workers' organizational commitment. *J. Manag. Eng.* **2017**, *33*, 04016043. [[CrossRef](#)]
100. Joo, B.K.; Song, J.H.; Lim, D.H.; Yoon, S.W. Team creativity: The effects of perceived learning culture, developmental feedback and team cohesion. *Int. J. Train. Dev.* **2012**, *16*, 77–91. [[CrossRef](#)]

101. Kozlowski, S.W.; Ilgen, D.R. Enhancing the effectiveness of work groups and teams. *Psychol. Sci. Public Interest* **2006**, *7*, 77–124. [[CrossRef](#)] [[PubMed](#)]
102. Huzzard, T. The convergence of the quality of working life and competitiveness. *Stockh. Natl. Inst. Work. Life* **2003**, *1*.
103. Hamilton, B.H.; Nickerson, J.A.; Owan, H. Team incentives and worker heterogeneity: An empirical analysis of the impact of teams on productivity and participation. *J. Political Econ.* **2003**, *111*, 465–497. [[CrossRef](#)]
104. Albrecht, S.L.; Bakker, A.B.; Gruman, J.A.; Macey, W.H.; Saks, A.M. Employee engagement, human resource management practices and competitive advantage: An integrated approach. *J. Organ. Eff. People Perform.* **2015**, *2*, 7–35. [[CrossRef](#)]
105. Chen, X.; Jing, L.; Wang, H.; Yang, J. How medical staff alleviates job burnout through sports involvement: The mediating roles of health anxiety and self-efficacy. *Int. J. Environ. Res. Public Health* **2022**, *19*, 11181. [[CrossRef](#)] [[PubMed](#)]
106. Wei, H.; Wu, B.; Park, H.; Deng, C. Is exercise good for all? Time-and strain-based work–family conflict and its impacts. *J. Soc. Psychol.* **2023**, *163*, 230–247. [[CrossRef](#)]
107. Murphy, L.R. Stress management in work settings: A critical review of the health effects. *Am. J. Health Promot.* **1996**, *11*, 112–135. [[CrossRef](#)] [[PubMed](#)]
108. Hon, A.H.; Chan, W.W.; Lu, L. Overcoming work-related stress and promoting employee creativity in hotel industry: The role of task feedback from supervisor. *Int. J. Hosp. Manag.* **2013**, *33*, 416–424. [[CrossRef](#)]
109. Kirkman, B.L.; Rosen, B.; Gibson, C.B.; Tesluk, P.E.; McPherson, S.O. Five challenges to virtual team success: Lessons from Sabre, Inc. *Acad. Manag. Perspect.* **2002**, *16*, 67–79. [[CrossRef](#)]
110. Kong, H.; Yin, Z.; Baruch, Y.; Yuan, Y. The impact of trust in AI on career sustainability: The role of employee–AI collaboration and protean career orientation. *J. Vocat. Behav.* **2023**, *146*, 103928. [[CrossRef](#)]
111. Meyer, J.P.; Allen, N.J. A three-component conceptualization of organizational commitment. *Hum. Resour. Manag. Rev.* **1991**, *1*, 61–89. [[CrossRef](#)]
112. Suddaby, R.; Gendron, Y.; Lam, H. The organizational context of professionalism in accounting. *Account. Organ. Soc.* **2009**, *34*, 409–427. [[CrossRef](#)]
113. Glaeser, E.L.; Scheinkman, J.A. Measuring social interactions. In *Social Dynamics*; MIT Press: Cambridge, MA, USA, 2001; pp. 83–132. [[CrossRef](#)]
114. Heimberg, R.G.; Mueller, G.P.; Holt, C.S.; Hope, D.A.; Liebowitz, M.R. Assessment of anxiety in social interaction and being observed by others: The Social Interaction Anxiety Scale and the Social Phobia Scale. *Behav. Ther.* **1992**, *23*, 53–73. [[CrossRef](#)]
115. Ulmanen, S.; Soini, T.; Pietarinen, J.; Pyhältö, K. Students’ experiences of the development of emotional engagement. *Int. J. Educ. Res.* **2016**, *79*, 86–96. [[CrossRef](#)]
116. Soane, E.; Truss, C.; Alfes, K.; Shantz, A.; Rees, C.; Gatenby, M. Development and application of a new measure of employee engagement: The ISA Engagement Scale. *Hum. Resour. Dev. Int.* **2012**, *15*, 529–547. [[CrossRef](#)]
117. Solís, M.; Mora-Esquivel, R. Development and validation of a measurement scale of the innovative culture in work teams. *Int. J. Innov. Sci.* **2019**, *11*, 299–322. [[CrossRef](#)]
118. Bevelaqua, A.; Muss, C. Stress Relief Measurements in Young Adults and Adolescents—A Comparative Pilot Study with Different Relaxation Programs. *Open J. Prev. Med.* **2024**, *14*, 131–142. [[CrossRef](#)]
119. Knoop, R. Relieving stress through value-rich work. *J. Soc. Psychol.* **1994**, *134*, 829–836. [[CrossRef](#)] [[PubMed](#)]
120. Callow, N.; Smith, M.J.; Hardy, L.; Arthur, C.A.; Hardy, J. Measurement of transformational leadership and its relationship with team cohesion and performance level. *J. Appl. Sport Psychol.* **2009**, *21*, 395–412. [[CrossRef](#)]
121. Salas, E.; Grossman, R.; Hughes, A.M.; Coultas, C.W. Measuring team cohesion: Observations from the science. *Hum. Factors* **2015**, *57*, 365–374. [[CrossRef](#)] [[PubMed](#)]
122. Carless, S.A.; De Paola, C. The measurement of cohesion in work teams. *Small Group Res.* **2000**, *31*, 71–88. [[CrossRef](#)]
123. Nunnally, J.C. An overview of psychological measurement. In *Clinical Diagnosis of Mental Disorders: A Handbook*; Springer: Boston, MA, USA, 1978; pp. 97–146. [[CrossRef](#)]
124. Larsen, R.; Warne, R.T. Estimating confidence intervals for eigenvalues in exploratory factor analysis. *Behav. Res. Methods* **2010**, *42*, 871. [[CrossRef](#)]
125. Shrestha, N. Factor analysis as a tool for survey analysis. *Am. J. Appl. Math. Stat.* **2021**, *9*, 4–11. [[CrossRef](#)]
126. Valentini, F.; Damásio, B.F. Average variance extracted and composite reliability: Reliability coefficients. *Psic. Teor. Pesq.* **2016**, *32*.
127. Chin, W.W. The partial least squares approach to structural equation modeling. In *Modern Methods for Business Research*; Lawrence Erlbaum Associates Publishers: Mahwah, NJ, USA, 1998; pp. 295–336.
128. Goodrum, P.M. Worker satisfaction and job preferences in the US construction industry. In *Construction Research Congress: Wind of Change: Integration and Innovation*; American Society of Civil Engineers: Reston, VA, USA, 2003; pp. 1–8. [[CrossRef](#)]
129. Spatz, D.M. Team-building in construction. *Pract. Period. Struct. Des. Constr.* **2000**, *5*, 93–105. [[CrossRef](#)]

130. Akinola Victoria, O.; Ayodele Femi, O. Evaluation of the Impact of Teamwork on Building Project Delivery in Ekiti State, Nigeria. *IIARD Int. J. Geogr. Environ. Manag.* **2019**, *5*, 58–68. [[CrossRef](#)]
131. Kwon, S.H. Analyzing the impact of team-building interventions on team cohesion in sports teams: A meta-analysis study. *Front. Psychol.* **2024**, *15*, 1353944. [[CrossRef](#)]

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