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Impact of Safety Leadership and Employee Morale on Safety Performance: The Moderating Role of Harmonious Safety Passion

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Abstract: Construction sites are among the most hazardous workplaces, making safety a critical concern in the sector. This study investigates the interplay between safety leadership, employee morale, harmonious safety passion, and safety performance through the lens of the social exchange theory. This research aims to assess how safety leadership impacts safety performance directly and indirectly, with employee morale acting as a mediator while harmonious safety passion moderates these relationships. A quantitative approach was employed, with data collected through structured questionnaires administered to construction workers in Istanbul and Ankara, Turkey. A total of 438 valid responses were analyzed using the Statistical Package for the Social Sciences (version 25) and Analysis of Moment Structures (version 24) for reliability, validity, and hypothesis testing. The findings confirm that safety leadership positively influences both safety performance and employee morale. Employees with high morale directly contribute to improved safety performance and act as a mediator between safety leadership and safety performance. Additionally, harmonious safety passion moderates the relationship between employee morale and safety performance, strengthening the link for workers with higher levels of passion. However, its moderating effect on the relationship between safety leadership and safety performance was not significant. These insights offer practical implications for designing safety training programs, leadership development initiatives, and policies aimed at improving safety outcomes in construction. Future research should explore longitudinal designs and diverse contexts to further validate these findings.

Keywords: safety performance; leadership; construction industry; social exchange theory; employee morale; Turkey

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1. Introduction

The construction sector is inherently hazardous, presenting one of the riskiest occupational environments. Despite advances in safety measures, the incident rate within the construction industry has shown minimal decline. Legislative frameworks, such as the Occupational Health and Safety Act No. 6331 and European Union Directives, implemented on 30 June 2012, highlight the importance of rigorous safety protocols [1]. Central to achieving a safer workplace is safety leadership, which plays a pivotal role in adopting and executing protective measures. Although risk perception often garners substantial focus in occupational safety studies, many fail to examine hazards—the root causes of potential harm. A clear distinction is critical, as hazards are the sources of harm, whereas

risks reflect the potential consequences [2]. Risk evaluation further involves an objective assessment of a hazard's likelihood and impact to determine the actual level of threat.

Safety leadership is instrumental in monitoring workplace performance and has recently undergone tailored training to enhance its efficacy [3]. It actively fosters an environment conducive to achieving superior safety outcomes while providing employees with supportive measures. These efforts encourage employees' long-term commitment to organizational goals [4].

At the same time, safety performance is a top priority for the construction industry. Organizations must proactively reduce hazards within the working environment to improve safety metrics [5,6]. Unfortunately, despite their pursuit of increased profitability, many firms fail to maintain satisfactory safety standards [7]. Regularly reviewing and enhancing safety protocols is therefore essential for ensuring safety performance aligns with industry benchmarks [8]. Integrating safety climate and safety culture is critical to achieving optimal safety performance, as effective communication and precautionary measures are essential for mitigating risks in high-hazard environments.

Employee morale is another vital determinant of safety and organizational performance. High morale cultivates passion, fulfillment, and energy, which translates to increased productivity and profitability [9]. Importantly, this study focuses on harmonious safety passion—a concept that fosters positive welfare measures and job satisfaction. By improving work-life balance and promoting safe behavior, harmonious safety passion significantly shapes workers' safety behaviors [10–13]. Moreover, it facilitates optimistic work practices, which positively influence individual safety behaviors within construction settings [14,15].

This research employs social exchange theory to assess the interplay between safety leadership and employee morale in enhancing safety performance. Employee morale is examined as a mediator, while harmonious safety passion serves as a moderator in the proposed framework. This study emphasizes the significance of implementing robust safety measures in Turkey's construction sector while advancing social exchange theory in this context. Key research objectives are as follows:

1. To examine the direct impact of safety leadership on both employee morale and safety performance;
2. To assess the relationship between employee morale and safety performance;
3. To investigate the mediating role of employee morale in the relationship between safety leadership and safety performance;
4. To study the moderating effect of harmonious safety passion on the relationship between employee morale and safety performance;
5. To explore the moderating effect of harmonious safety passion on the relationship between safety leadership and safety performance.

This study aims to identify individual traits influencing safety outcomes and systematically addresses its objectives. Section 1 introduces the topic, Section 2 outlines the theoretical foundation and hypotheses, Section 3 details the research methods, Section 4 discusses findings and recommendations, and Section 5 summarizes the discussions and presents the theoretical contributions and managerial implications. Based on social exchange theory, this research formulates hypotheses, as illustrated in the proposed conceptual model (Figure 1).

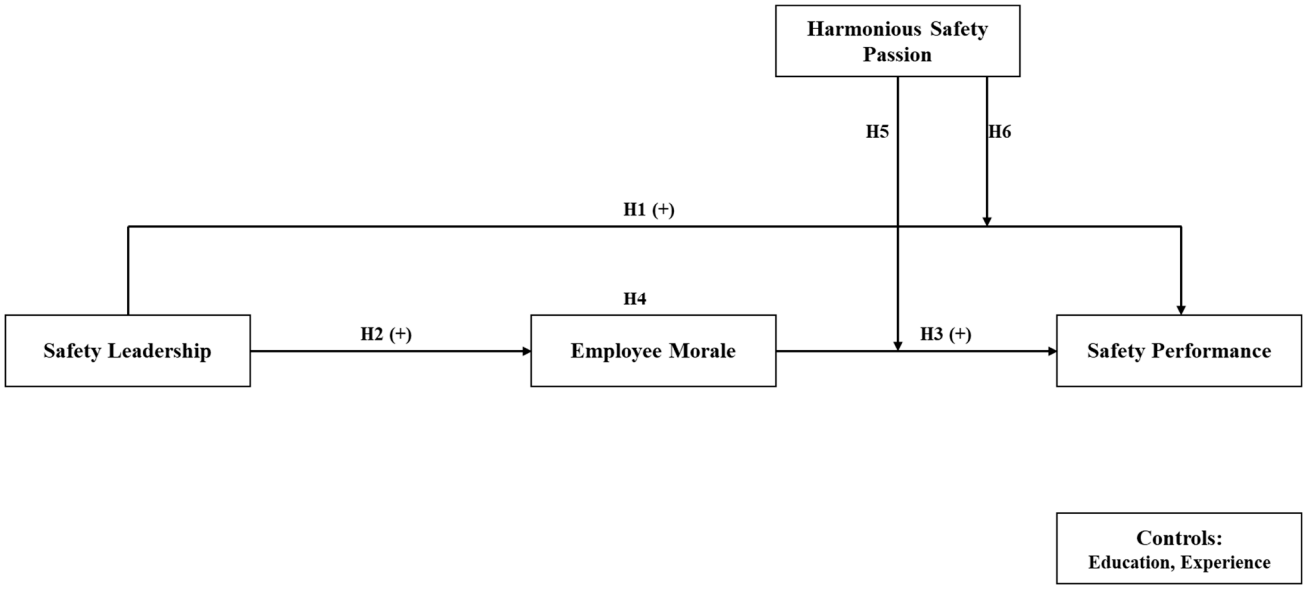

Figure 1. Conceptual model.

2. Theoretical Background and Hypothesis Development

2.1. Social Exchange Theory

Social exchange theory serves as a vital framework for analyzing safety performance within workplace environments. This theory posits that individual behaviors in professional settings are influenced by the benefits workers receive [16]. When employees perceive that their needs and expectations are met, they are more likely to exhibit positive outcomes and contribute to organizational profitability. Graen and Cashman [17] emphasized that safety leadership significantly enhances safety performance through the lens of social exchange theory. Similarly, Seers [18] argued that effective safety leadership, combined with robust collaboration between workers and supervisors, is essential for fostering high safety performance in the construction sector. Seers et al. [19] further highlighted that shifts in safety leadership could adversely affect performance when organizational expectations remain unmet [20,21].

The theory underscores the critical role of addressing workers' needs, which enables positive organizational changes and improved safety outcomes. Central to social exchange theory are relationships built on belief, confidence, and mutual trust, all of which create a supportive and conducive work environment [22]. It also considers the cost-benefit analysis individuals perform when evaluating the benefits of engaging in safety-related activities against their associated efforts or costs. Research within this theoretical context assumes that effective dissemination of safety-related information constitutes a beneficial exchange, motivating employees to adopt safe practices [23]. Thus, social exchange theory provides a compelling foundation for exploring the interplay of leadership, employee behavior, and safety performance within organizational settings.

2.2. Safety Leadership

Safety leadership is a critical driver of workplace safety, particularly in high-risk industries such as construction. It encompasses the practices of leaders who guide individuals or teams to complete assigned tasks with heightened safety precautions [24]. The evolving nature of work necessitates ongoing adjustments in safety leadership to align with new challenges and expectations [25]. At times, even subtle shifts in safety leadership practices can significantly impact safety performance, demonstrating the importance of both straightforward and complex leadership approaches [26–29]. Confidence and consistent behavior

among leaders can foster optimism about safety practices among workers, underscoring the relational dynamics outlined in social exchange theory [3]. Within this framework, safety leadership establishes an optimistic connection between leaders and workers [30,31].

Safety leadership enhances workplace safety by fostering worker satisfaction and respect, which are key to motivating adherence to safety protocols. Leaders provide on-site guidance, helping employees overcome hazards through precautionary strategies. Furthermore, safety leadership drives the development and execution of innovative practices aimed at achieving organizational safety goals. By cultivating positive safety behavior, it promotes a stable and secure working environment [32,33].

The construction workplace poses diverse risks and hazards that significantly influence safety performance. Strong safety leadership enhances an organization's capacity to identify and mitigate high-risk practices, effectively reducing the likelihood of incidents [34]. Effective communication is a fundamental component of safety leadership, bridging knowledge gaps and driving growth in safety standards. Leaders who excel in communication not only improve safety awareness but also strengthen relationships between coworkers. Ultimately, safety leadership is pivotal in retaining workers, ensuring that construction projects operate smoothly and with minimized risk.

2.3. Safety Performance

Safety performance is a critical area of research in the construction sector, often regarded as the cornerstone of effective risk management. It seeks to prevent hazards and ensure the implementation of practical, field-based safety policies [35,36]. A key objective of safety performance is the introduction of welfare measures and protective practices that safeguard construction workers. Additionally, safety performance shapes safety-conscious behavior among employees, emphasizing the importance of proactive measures on construction sites [37].

Promoting positive safety behaviors is essential to enhancing safety performance. This requires collaborative discussions and analyses between administrators and workers to address safety challenges effectively. For instance, Abeje and Luo [35] highlighted that proactive safety performance measures can significantly mitigate hazards during unexpected events. Such enhancements can be both proactive, aimed at preventing incidents, or reactive, addressing safety failures after they occur [38]. In recent years, innovative analysis methods, including the Reliability, Availability, Maintainability, and Safety (R.A.M.S.) framework, have been developed to evaluate and improve plant safety. These methods allow organizations to anticipate vulnerabilities during the design phase and adopt preventative measures. Studies like those on gas turbine risk management illustrate the importance of identifying risks, implementing strategies to mitigate them, and continuously monitoring risk landscapes. For example, advancements in the Safety Allocation technique, such as the Sphynx Method, have further enhanced safety practices [39,40].

The relationship between safety performance and workplace dynamics can also be explained through the lens of social exchange theory. This framework suggests that a safe and supportive workplace fosters trust and commitment among employees [41]. Conversely, unsafe environments negatively impact employee trust and safety outcomes. Within Turkey's construction sector, upgrading protective measures and leveraging advanced technologies are vital to ensuring worker safety. By enhancing safety performance, organizations can reduce hazards and improve the overall working environment [34].

2.4. Harmonious Safety Passion

Harmonious safety passion is a psychological concept describing the voluntary integration of safety-related behaviors into employees' identities, which motivates them to

actively engage in such behaviors. This intrinsic commitment significantly contributes to both safety performance and safety leadership within organizational contexts [42]. Work passion, including harmonious safety passion, fosters a stronger dedication to workplace roles and yields substantial benefits for both individuals and organizations [43,44]. Harmonious safety passion enhances individual support within workplace environments, fostering positive motivation and aligning employees' goals with broader organizational objectives [45,46].

This intrinsic passion drives notable improvements in safety performance. By promoting behaviors conducive to a safe working environment, harmonious safety passion enables workers to operate effectively and maintain consistent safety practices on-site [47,48]. Moreover, it supports the development of intrinsic behaviors, motivating individuals to perform their tasks as assigned by leaders while adhering to critical safety protocols [42,43]. Employees exhibiting high levels of harmonious safety passion often benefit from associated welfare measures, recreational opportunities, and increased job satisfaction. Ultimately, harmonious safety passion encapsulates an individual's proactive participation in implementing and maintaining safety measures at construction sites, reinforcing a culture of safety and accountability.

2.5. Safety Leadership and Safety Performance

Hazardous incidents remain prevalent in Turkey's construction sector, highlighting the critical need for effective safety measures [1]. Through the lens of social exchange theory, safety leadership emerges as a key driver of safety performance by fostering an environment built on satisfaction, confidence, and coordination. This relational approach promotes optimism and trust, essential for achieving improved safety outcomes [3]. Safety leadership establishes a direct and positive influence on workplace safety performance, where well-developed safety practices empower workers to contribute effectively to environmental safety standards [3].

Safety performance in the construction industry necessitates the proactive implementation of hazard mitigation policies [35]. Safety leadership serves as the foundation for cultivating an optimistic safety culture within organizations by ensuring that leaders effectively assign tasks, utilize clear communication strategies, and guide workers to prevent hazards. This leadership approach enables construction sites to achieve positive safety outcomes. Moreover, social exchange theory frequently underscores the value of safety leadership in measuring safety performance. As a result, robust safety leadership has been linked to reducing workplace stress, enhancing wage conditions, and elevating field safety [49]. Based on the discussion above, this study proposes the following hypothesis:

H1. *Safety leadership has a positive relationship with safety performance.*

2.6. Safety Leadership and Employee Morale

Social exchange theory conceptualizes employee morale as the level of commitment an employee demonstrates based on their perception of organizational support and workplace community. This theory posits that employees reciprocate favorable treatment by feeling a sense of obligation toward their responsibilities. In this context, safety leadership plays a pivotal role in shaping employee morale, serving as a guiding force that motivates workers to adopt additional safety measures [50]. Elevated employee morale not only enhances a firm's operational capacity but also contributes to increased profitability, particularly in Turkey's construction industry [9].

High levels of employee morale foster a positive organizational environment, enhancing safety performance and reinforcing effective safety leadership. To achieve this, firms must engage in activities that add tangible value to employees. Beyond simply retaining

workers, cultivating high morale is critical for improving productivity and supporting the long-term sustainability of the organization [51]. Research indicates that employee morale acts as a critical link between safety leadership and improved safety performance, particularly in addressing workplace incidents. Based on the preceding discussion, this study proposes the following hypothesis:

H2. *Safety leadership has a positive relationship with employee morale.*

2.7. Employee Morale and Safety Performance

Employees with high morale experience greater satisfaction and joy in their work, which enhances their commitment and retention in the workplace [52,53]. Research indicates that leaders can improve safety performance by encouraging behaviors that motivate employees to focus on their tasks. Many firms have adopted safety leadership training programs and practices, aiming to institutionalize safety measures as independent of individual behavior while achieving a balance between leadership directives and organizational goals [54,55]. Safety leaders inspire employees to streamline daily tasks while prioritizing health and safety.

The interplay between safety leadership and employee morale plays a crucial role in retaining employees and meeting workplace demands [56,57]. Firms that cultivate positive employee morale often experience improved safety performance by implementing welfare measures and fostering a secure work environment [35]. Positive workplace environments are integral to maintaining safety standards and preventing workplace incidents [36]. Employee morale, when aligned with safety performance, fosters happiness, fulfillment, and a positive approach toward work. Evidence suggests that organizations prioritizing safety performance can also achieve enhanced profitability.

Employee morale directly contributes to increased efficiency and overall performance. Globally, organizations recognize employee morale as a critical factor in productivity and organizational success. Bowles and Cooper [58] noted that high morale is associated with enhanced confidence, goal-setting, and workplace satisfaction, equipping employees to achieve tasks assigned by industry leaders. As employee morale rises, so does job satisfaction, which is instrumental in bolstering safety performance. Johnsrud et al. [59] describe employee morale as a manifestation of energy, happiness, and excitement, fostering adaptability and trustworthiness within organizations. Based on these arguments, the following hypothesis is proposed:

H3. *Employee morale has a positive relationship with safety performance.*

2.8. The Mediation Role of Employee Morale

Employee morale reflects a worker's behavior and overall attitude toward their organization or role, playing a pivotal role in the context of safety leadership. High-quality safety leadership fosters elevated standards of employee morale, while low morale can lead to decreased productivity and challenges in employee retention. By leveraging both existing expertise and updated knowledge, safety leadership establishes a positive work environment that minimizes unnecessary burdens on employees [60].

Safety leadership and performance are integral in providing essential support to construction laborers, site engineers, and the overall working environment. Effective safety leadership helps mitigate unforeseen hazards and creates a culture of preparedness [34]. Active safety leaders ensure that workers are well-versed in safety protocols and encourage open communication. Additionally, they motivate employees to handle equipment properly, thereby preventing workplace accidents.

The broader influence of safety leadership is seen in its ability to cultivate a protective and innovative work environment. High employee morale is characterized by job satisfaction, innovation, and adaptability, which collectively enhance safety performance. According to Vallerand and Houlfort [9], morale fluctuates across a spectrum, impacting organizational dynamics. Social exchange theory posits that employee morale stems from a sense of commitment to organizational activities and satisfaction derived from fulfilling those commitments. High morale encourages employee retention and fosters a strong connection between workers and positive safety performance, ultimately reducing turnover rates.

Research consistently highlights the critical role of safety leadership in cultivating high levels of employee morale. A positive and supportive work environment not only boosts morale but also improves safety performance by reducing workplace hazards. Building on these theoretical insights, the following hypothesis is proposed:

H4. *Employee morale mediates the relationship between safety leadership and safety performance.*

2.9. The Moderation Role of Harmonious Safety Passion

Harmonious safety passion refers to a positive influence on an individual's engagement in safety-related practices in the workplace. It embodies an optimistic sense of gratitude, which motivates employees to actively participate in activities aligned with their enthusiasm for safety [45,46]. Moreover, a harmonious passion for safety fosters intrinsic motivation [43], thereby contributing to enhanced safety performance within an organization [42]. Individuals who possess a harmonious passion for safety tend to improve their safety performance by maintaining strong relationships with colleagues and consistently engaging in safety-related behaviors.

Safety leadership has been shown to have a positive association with harmonious safety passion [61]. It inspires employees to maintain perseverance at work, creating an environment that promotes safety through active leadership. When workers observe effective safety leadership, it cultivates a supportive and motivating workplace environment that fosters creativity and engagement. Safety leadership involves implementing safety measures on-site to ensure a safe and successful extension of work tasks. Research on safety leadership emphasizes the development of harmonious safety performance within the workplace environment [33].

In large-scale firms, safety performance is critical for preventing workplace hazards, particularly in sectors where safety is a primary concern. This research underscores the importance of enhancing safety performance through employee welfare initiatives [35]. Harmonious safety passion encourages employees to embrace safety leadership, which in turn improves safety outcomes. The organization supports harmonious safety passion within specific roles, job demands, and resource utilization. Based on the preceding discussions, the following hypotheses are proposed:

H5. *Harmonious safety passion moderates the relationship between employee morale and safety performance.*

H6. *Harmonious safety passion moderates the relationship between safety leadership and safety performance.*

3. Method

3.1. Sampling and Data Collection

A questionnaire survey was developed, followed by a pilot study [62]. The survey was subsequently revised and face-validated by a panel of eight experts—scholars and

professionals in the field of the construction sector with extensive experience in construction site safety management. Their feedback, informed by the results of the pilot study, was instrumental in refining the survey, particularly concerning the translation and clarity of the measurement items.

The formal questionnaire survey was administered from 18 May to 3 July 2024. The survey was distributed both electronically and in person. Google Forms was used to create the electronic version of the questionnaire, which was sent to respondents via email. For the offline administration, paper questionnaires were distributed during on-site visits. The target respondents were construction workers employed at construction firms in Istanbul and Ankara. Permission was obtained from the construction firms prior to administering the survey. Cover letters outlining the objectives of this study and the potential benefits to respondents were included with the questionnaires [63]. The effectiveness of the survey was enhanced by the respondents' awareness that the findings could potentially improve their working conditions [64]. Throughout the data collection process, respondents were reminded that participation was entirely voluntary and that they could withdraw at any time.

The simple random sampling method is increasingly common in the construction sector and safety research [65,66]. Given the method's fairness and its assurance of equal selection probability for all members of the population, 805 questionnaires were distributed through both electronic and offline means. However, 481 completed questionnaires were returned. Incomplete responses and missing data led to the exclusion of 43 responses from the final analysis, yielding a response rate of 54.41%. The demographic information of the respondents is presented in Table 1.

Table 1. Respondents' information.

(*n* = 438)	Category	Frequency	Proportion (%)
Gender			
	Male	434	99.09
	Female	4	0.91
Education			
	College/High school	210	47.95
	Graduate	222	50.68
	Others	6	1.37
Experience			
	Less than 5	79	18.04
	5–10	152	34.70
	11–15	181	41.32
	16 and above	26	5.94
Age			
	Less than 25	167	38.13
	25–34	217	49.54
	35–44	35	7.99
	45 and above	19	4.34

The majority of respondents were male (99.09%, 434), with 0.91% (4) identifying as female. In terms of education, 47.95% (210) held a high school or college diploma, 50.68%

(222) had graduate education, and 1.37% (6) had other educational qualifications. Most respondents (81.96%, 359) reported having at least five years of work experience, making them well-qualified to participate in the survey. The distribution of respondents by age was as follows: under 25 years (38.13%, 167), 25–34 years (49.54%, 217), 35–44 years (7.99%, 35), and 45 years or older (4.34%, 19).

3.2. Survey Measures

Safety leadership was measured using 10 items adapted from Zohar [67]. Respondents were asked to rate the extent to which their supervisors encouraged adherence to safety policies, protocols, and procedures. A sample item is "My supervisor approaches workers during work to discuss safety issues." Employee morale was assessed using five items adapted from Rotimi et al. [68]. Respondents rated items related to their work morale. A sample item is "Feeling marginalized (feeling powerless, having low confidence)." Harmonious safety passion was measured using five items from Ali et al. [42]. A sample item is "I am passionate about safety at work." Safety performance was measured using five items adapted from Neal and Griffin [69]. This construct assessed the extent to which respondents comply with and participate in work-related activities to ensure safety quality. A sample item is "I use the correct safety procedures for carrying out my job." For a detailed list of the survey items and constructs, see Appendix A.

3.3. Statistical Methods

Descriptive analysis was conducted to summarize the demographic characteristics of the respondents. Bivariate correlation was used to examine the relationships between the variables (safety leadership, employee morale, harmonious safety passion, and safety performance). The measurement model was evaluated using confirmatory factor analysis (CFA), followed by testing the hypothesized model [70]. Direct, mediation, and moderation analyses were performed using the PROCESS macro for SPSS [71]. The bias-corrected 95% confidence interval was calculated using 5000 bootstrap resamples.

Model 4 of the PROCESS macro was employed to examine the direct effects and investigate whether the relationship between safety leadership (SL) and safety performance (SP) was mediated by employee morale (shown in Figure 1). Subsequently, Model 15 of the PROCESS macro was used to test the moderation effects, specifically exploring whether harmonious safety passion moderates the relationship between employee morale and SP and the relationship between safety leadership and SP (shown in Figure 1). As with the direct and mediation analyses, a conditional direct effect is established if the 95% confidence interval of the interactions does not contain zero.

Furthermore, in accordance with the simple slope test procedure outlined by Aiken et al. [72], and as recently followed by Alwheshi et al. [73], Iyiola et al. [74], and Kefas et al. [75], the conditional direct effects were visualized to gain deeper insight into the interactions. Moderation analyses controlled for covariates such as education and experience. Statistical analyses were performed using SPSS version 25 and AMOS version 24.

4. Data Analysis and Results

4.1. Non-Response Bias and Common Method Bias

In accordance with Armstrong and Overton [76], we assessed non-response bias by dividing the collected data into two groups: one consisting of respondents who completed the initial survey and the other consisting of respondents who provided their responses after receiving reminders and follow-up interventions. A comparison was made between the early and late respondents, focusing on the demographic characteristics presented

in Table 1. The results of a *t*-test indicated no significant differences, suggesting that non-response bias did not pose a serious concern in the current study.

Following recommendations from the literature for assessing the presence of common method bias (CMB) in survey-based research, we adhered to the approach outlined by Podsakoff et al. [77] by implementing both procedural and statistical remedies. To promote honest responses, we ensured the complete anonymity of the respondents. Additionally, in accordance with Podsakoff et al. [77], we applied Harman's single-factor approach with an unrotated solution to examine the presence of CMB in the collected data [78]. The variance explained by the first factor accounted for 37.18% of the total variation. Moreover, a marker variable was included in the survey, incorporating a theoretically unrelated construct [79]. The results indicated that the correlation between the marker variable and the primary constructs of this study—safety leadership, employee morale, harmonious safety passion, and safety performance—was less than 0.05. Based on these statistical remedies, it is unlikely that CMB significantly influenced the conclusions of the current research.

4.2. Measurement Model Assessment

The reliability of the variable measurements was assessed using Cronbach's alpha, which indicates the extent to which the indicators of the social exchange theory measure the associated latent variables. The results of the measurement model are presented in Table 2. As shown, Cronbach's alpha values ranged from 0.901 to 0.948, exceeding the recommended threshold of 0.7 established by Hair et al. [80].

Table 2. Measurement model.

Constructs	Items	FL	α	CR	AVE	Fit Metrics
Safety leadership			0.948	0.945	0.634	CMIN = 870.734 df = 306 CMIN/df = 2.846 p = < 0.000 GFI = 0.901 CFI = 0.940 NFI = 0.832 TLI = 0.935 RFI = 0.940 RMSEA = 0.057
	SL1	0.762				
	SL2	0.778				
	SL3	0.830				
	SL4	0.795				
	SL5	0.826				
	SL6	0.796				
	SL7	0.828				
	SL8	0.769				
	SL9	0.749				
	SL10	0.826				
Employee morale						
	EM1	0.805	0.907	0.905	0.657	
	EM2	0.860				
	EM3	0.802				
	EM4	0.797				
	EM5	0.786				

Table 2. *Cont.*

Constructs	Items	FL	α	CR	AVE	Fit Metrics
Harmonious safety passion						
	HSP1	0.840	0.902	0.902	0.648	
	HSP2	0.762				
	HSP3	0.872				
	HSP4	0.777				
	HSP5	0.768				
Safety performance	SP1	0.748	0.901	0.905	0.657	
	SP2	0.853				
	SP3	0.788				
	SP4	0.892				
	SP5	0.762				

Note: FL = factor loading; α = Cronbach's alpha; AVE = average variance extracted; CR = composite reliability; SL = safety leadership; EM = employee morale; HSP = harmonious safety passion; SP = safety performance.

Convergent validity was evaluated by computing the standardized factor loadings and the significance of the *t*-values. For variables with multiple corresponding items, significant associations between individual items and their underlying factors should be present, with an average variance extracted (AVE) for each factor equal to or greater than 0.5 and the factor loadings for each item exceeding the recommended threshold of 0.6 [81,82]. As shown in Table 2 and Figure 2, the factor loadings ranged from 0.748 to 0.892, ensuring that the AVE values were above the 0.5 threshold (ranging from 0.634 to 0.657). This confirms that the measurement items are reliable and consistent [13].

Following the approach outlined by Fornell and Larcker [81], discriminant validity among the latent constructs was examined by comparing the AVE values with the correlation coefficients between the constructs. Table 3 provides the descriptive statistics (i.e., means and standard deviations) and correlations among the variables. Table 3 also shows that the square root of each AVE was greater than the corresponding correlation coefficients, further supporting discriminant validity.

Table 3. Descriptive statistics and discriminant validity.

Variable	M	STD	Safety Leadership	Employee Morale	Harmonious Safety Passion	Safety Performance	Edu	Exp
Safety leadership	4.012	0.946	**0.796**					
Employee morale	4.001	0.988	0.439 **	**0.810**				
Harmonious safety passion	2.212	0.526	0.427 **	0.583 **	**0.805**			
Safety performance	4.035	0.984	0.446 **	0.557 **	0.576 **	**0.811**		
Edu	1.711	0.454	0.014	0.014	0.010	0.021	-	
Exp	2.464	1.151	0.013	0.013	−0.017	0.035	0.035	-

Note: ** = p <0.01; numbers in bold are the square roots of AVEs; STD = standard deviation; M = mean; Edu = education; Exp = experience.

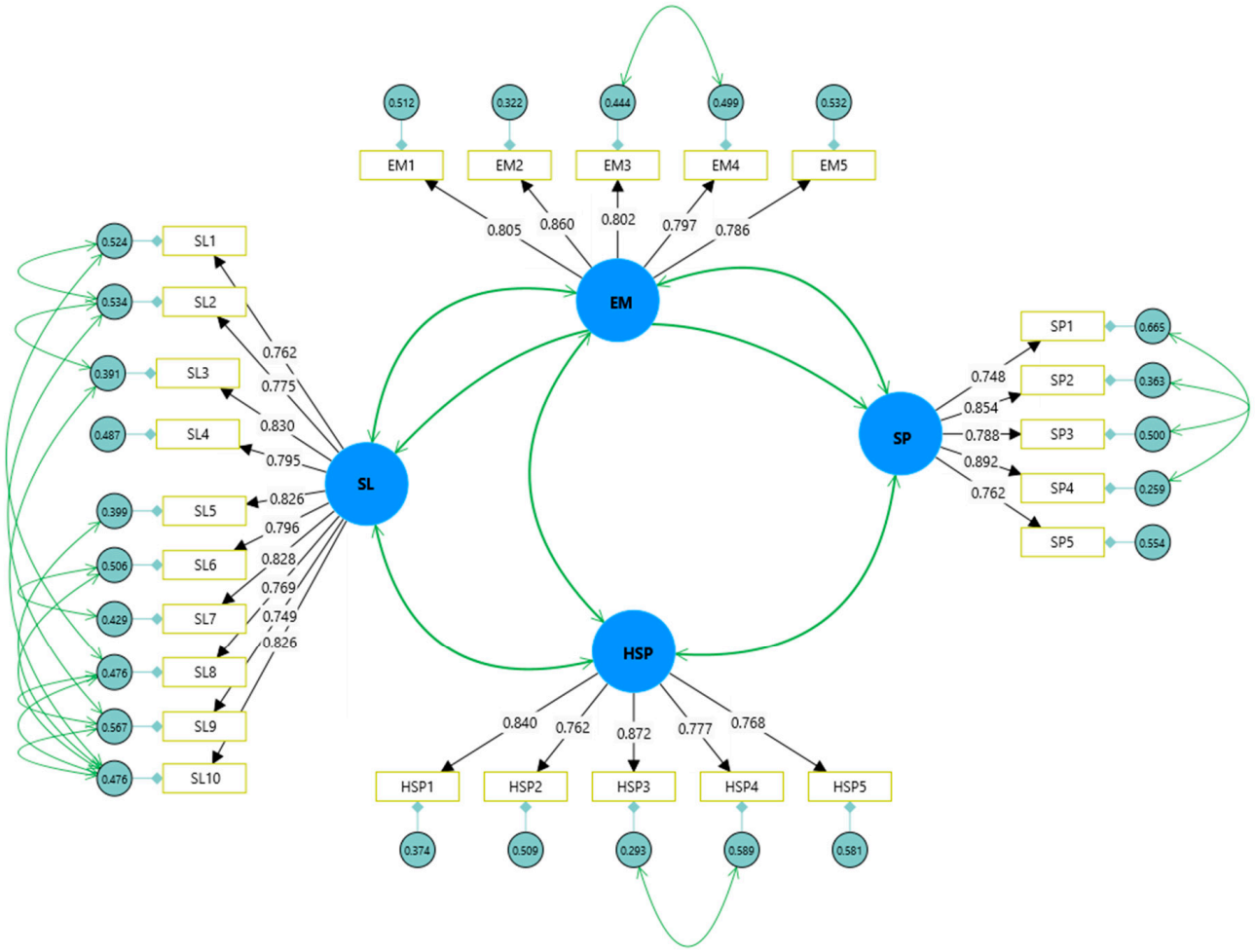

Figure 2. Factor loadings.

The confirmatory factor analysis (CFA) results indicated that the overall fit of the measurement model was satisfactory [83]; CMIN = 870.734, df = 306, CMIN/df = 2.846, $p < 0.000$, GFI = 0.901, CFI = 0.940, NFI = 0.832, TLI = 0.935, RFI = 0.940, RMSEA = 0.057.

To ensure there were no multicollinearity issues, we followed the approach suggested by Iyiola and Rjoub [65] and examined the variance inflation factor (VIF). The highest VIF values were below four, indicating that multicollinearity did not distort the results [82].

4.3. Direct and Indirect Effect Results

Table 4 presents the results for both direct and indirect effects. To test the direct and indirect effects of safety leadership on safety performance through employee attitudes, a regression analysis was conducted using the Hayes PROCESS macro (Model 4) [71]. The results in Table 4 show that safety leadership had a positive effect on safety performance ($\beta = 0.367$, $t = 9.634$, $p < 0.001$). Additionally, safety leadership had a positive effect on employee morale ($\beta = 0.871$, $t = 33.007$, $p < 0.001$), and employee morale positively influenced safety performance ($\beta = 0.580$, $t = 15.914$, $p < 0.001$). As a result, hypotheses H1, H2, and H3 were supported.

In line with the recommendations of Pattnaik and Jena [8], mediation effects were examined. The conditions for establishing a mediation effect are met when there is a significant relationship between the antecedent and the mediator, as well as between the mediator and the response variable [84]. Therefore, the direct effect between the antecedent and the response variables was also tested. With the three necessary conditions already satisfied, as previously explained, the next step was to determine whether a mediation

effect exists and the type of mediation [85]. The inclusion of employee morale as a mediator revealed that the direct relationship between safety leadership and safety performance remained significant. Consequently, partial mediation was established [86].

Table 4. Hypotheses testing results: direct and indirect effects.

Bootstrapping Results for Direct (Bias-Corrected 95% Confidence Interval)							
	Hypothesized Paths	**β**	**SE**	***t*-Values**	**LL**	**UL**	**R^2**
H1	Safety leadership → Safety performance	0.367	0.038	9.634 ***	0.292	0.441	0.701
H2	Safety leadership → Employee morale	0.871	0.026	33.007 ***	0.819	0.922	
H3	Employee morale → Safety performance	0.580	0.036	15.914 ***	0.508	0.651	
The indirect effects of safety leadership on SP via employee morale using the bootstrapping technique							
	Effect		**BootSE**		**BootLL**		**BootUL**
	Direct effect of X on Y	0.366	0.038		0.292	0.441	
H4	Safety performance → Safety attitude → Safety performance	0.505	0.045		0.411	0.587	

Note: β = estimate, SE = Standard Error, LL = Lower Level, UL = Upper Level, *** = $p < 0.001$.

Indirect effects were assessed using a bias-corrected bootstrapping method to evaluate the mediation effect. A bootstrapping procedure with 5000 resamples and a 95% confidence interval was conducted, revealing an indirect effect (β = 0.505, SE = 0.045, 95% CI [0.411, 0.587]). The confidence intervals did not include zero, thus supporting hypothesis H4.

4.4. Moderation Analysis

Model 15 of Hayes's [71] PROCESS macro was employed to examine the moderation hypotheses (H5 and H6). Using this model, two interaction terms were created to explore the moderation effects [87]. Prior to the analysis, education, and experience were included as covariates in Model 15. Additionally, the constructs were mean-centered to mitigate potential multicollinearity issues. The results of the moderation analysis are presented in Table 5, which includes two models. Model 2 reflects the two interactions outlined in the conceptual model.

In Model 2 of Table 5, safety leadership was found to significantly predict safety performance (β = 0.209, t = 5.393, $p < 0.001$). However, the interaction between safety leadership and harmonious safety passion did not moderate this relationship (β = 0.007, t = 0.154, $p > 0.05$, 95% CI [−0.080, 0.094]). As a result, H5 is rejected.

Moreover, Model 2 in Table 5 demonstrates that employee morale significantly predicts safety performance (β = 0.299, t = 6.899, $p < 0.001$). The relationship was found to be moderated by the interaction between safety leadership and harmonious safety passion (β = 0.115, t = 2.299, $p < 0.05$, 95% CI [0.022, 0.149]). Hence, harmonious safety passion moderates the relationship between employee morale and safety performance. To further explore this interaction, a simple slope test was conducted to examine the conditional direct effect at two levels of harmonious safety passion (low [−1SD] and high [+1SD]). The results of the simple slope test are illustrated in Figure 3.

Table 5. Hypothesis testing: conditional direct effect (moderation analyses).

Hypothesized Paths	β	SE	*t*-Values	95% Confidence Interval	
				LL	UL
Model 1:					
Co: Education → Employee morale	−0.031	0.056	−0.549 (ns)	−0.141	0.079
Co: Experience → Employee morale	−0.009	0.005	−1.789 (ns)	−0.019	0.001
Safety leadership → Employee morale	0.873	0.026	33.128 ***	0.821	0.925
R^2 = 0.597					
Model 2:					
Co: Education → Safety performance	0.048	0.041	1.167 (ns)	−0.033	0.129
Co: Experience → Safety performance	−0.011	0.004	0.990 (ns)	−0.018	0.096
Safety leadership → Safety performance	0.209	0.038	5.393 ***	0.133	0.285
Employee Morale → Safety performance	0.299	0.043	6.899 ***	0.214	0.384
Harmonious safety performance → Safety performance	0.284	0.046	6.227 ***	0.194	0.374
H5: Safety leadership × Harmonious safety passion → Safety performance	0.007	0.044	0.154 (ns)	−0.080	0.094
H6: Employee x Harmonious safety passion → Safety performance	0.115	0.043	2.299 *	0.022	0.149
R^2 = 0.840					
The conditional direct effect of employee morale on safety performance at different levels of harmonious safety performance					
The specific conditional values of harmonious safety passion					
+1SD (above the mean)	0.215	0.055	3.887 ***	0.106	0.324
−1SD (below the mean)	0.202	0.058	3.481 **	0.088	0.317
Index of moderated mediation by harmonious safety passion					
	Index	BootSE		BootLLCI	BootULCI
Safety leadership → Employee morale → Safety performance	0.055	0.042		−0.135	0.033

Note: β = estimate, SE = standard error, LL = lower level of confidence interval, UL = upper level of confidence interval, * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$.

Figure 3 reveals that the relationship between employee morale and safety performance is significant, with a stronger effect for employees with high harmonious safety passion (simple slope = 0.215, t = 3.887, CI = [0.106, 0.324]). Conversely, the relationship is weaker for employees with low harmonious safety passion (simple slope = 0.202, t = 3.481, CI = [0.088, 0.317]). Thus, H6 is supported, indicating that for construction workers with high harmonious safety passion, the relationship between employee morale and safety performance is stronger.

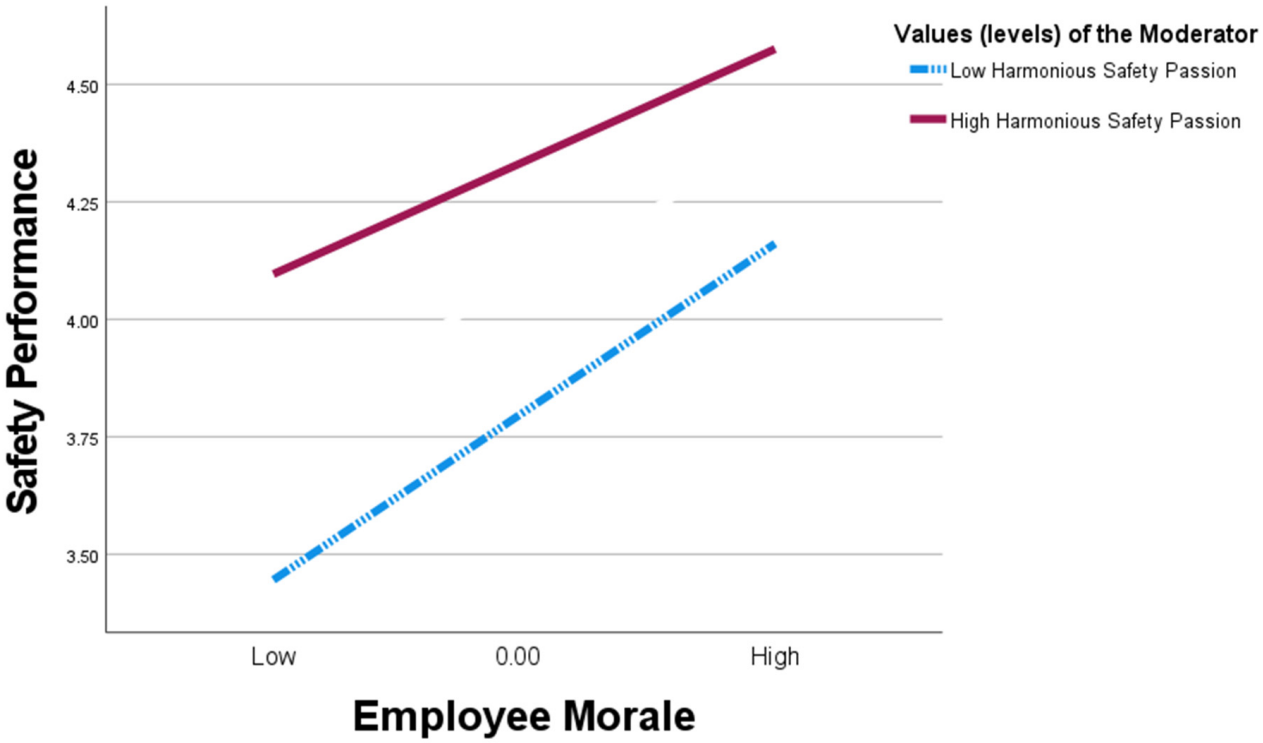

Figure 3. The interaction model of harmonious safety passion as a moderator.

5. Discussion and Conclusions

5.1. Discussion of Major Findings

This study explores the complex relationships between safety leadership, safety performance, employee morale, and the moderating role of harmonious safety passion within the context of the Turkish construction industry. The findings provide valuable insights into how safety practices influence employees' overall safety behavior in construction settings. The results confirm that safety leadership is positively related to safety performance. Furthermore, strong leadership can motivate employees to fully embrace their sense of responsibility and take consistent action to mitigate hazards [3]. Effective communication is crucial, especially when introducing safety measures for handling equipment to newly joined employees at a worksite. According to social exchange theory [21], individuals enhance service for others with the expectation of future reciprocity. When managers and supervisors demonstrate a commitment to workplace safety, employees are more likely to reciprocate by following safe work practices and adhering to other safety-related recommendations [88].

The analysis also reveals a positive relationship between employee morale and safety leadership. Employee morale plays a critical role in enhancing the overall spirit of performance within the sector [9]. In line with social exchange theory, the positive relationship between safety leadership and employee morale arises from employees perceiving their leaders' commitment, which in turn boosts both safety behaviors and employee morale [89]. Research shows that a high level of employee morale fosters a peaceful mindset and greater productivity.

Similarly, employee morale is positively associated with safety performance. Enhancing employee morale through safety initiatives is directly linked to providing regular safety training and reinforcement [52]. This is perceived as a positive exchange, which in turn increases employees' motivation to adhere to safety practices [89].

The analysis further suggests that employee morale mediates the relationship between safety leadership and safety performance. According to social exchange theory, responsible leaders can cultivate trust by actively participating in the implementation of safety procedures. As a result, employees are more likely to be motivated to meet performance targets [90]. External factors such as accidents and environmental conditions can affect safety leadership, but technological solutions can help overcome challenges related to verifying and cross-checking safety leadership practices [34].

Lastly, harmonious safety passion moderates the relationship between employee morale, safety performance, and leadership. Inspirational leaders promote harmonious passion for safety among employees, which in turn enhances their safety performance [42]. This fosters a positive safety culture and improves safety behaviors among employees. The findings of this research support the notion of a positive impact on safety performance [35]. A leader's concern for the safety and well-being of employees cultivates optimism in safety leadership. Organizations that support harmonious safety passion fulfill employees' expectations, which further enhances commitment to safety [33]. According to social exchange theory, employees with strong, harmonious safety passion perceive a positive exchange in which their organization reciprocates their commitment to safety by offering supportive leadership, recognition, and a safe working environment. This leads to increased job satisfaction and improved performance due to a shared sense of responsibility for safety [91]. Ultimately, these findings highlight the intricate interactions among various safety measures and their collective impact on safety performance.

5.2. Theoretical Implications

Work-related hazards are prevalent in the construction industry. This research strengthens the application of social exchange theory by highlighting the importance of safety leadership and its impact on safety performance, which, in turn, fosters social interactions and enhances workers' abilities to implement safety measures in the workplace [4]. Employees with high morale are more likely to actively engage with safety procedures, effectively utilize training on equipment handling, and respond positively to their supervisors' guidance. The results suggest that both safety performance and leadership are critical to promoting safe behavior and preventing hazards. Consequently, management must adopt strategic actions and policies to achieve a sustainable and safe work environment [33].

According to Ali et al. [42], a harmonious safety culture within the workplace acts as a mechanism for safety leadership and enhances employee safety performance. Social exchange theory supports this view, illustrating how a harmonious and safe work environment guides the implementation of effective safety measures. Harmonious passion, which represents the intrinsic motivation and engagement that employees exhibit toward safety initiatives, emerges when their values align with organizational priorities [42]. This notion is well-supported by social exchange theory, which describes the reciprocal relationship between leadership initiatives and employee responses. Leaders who prioritize worker safety foster a sense of value and commitment among employees, resulting in increased loyalty and productivity within the organization.

Furthermore, transparent and regular communication about safety protocols plays a crucial role in building trust and ensuring that workers feel included in the decision-making process. This participatory approach aligns with the findings of Mullen and Kelloway [32], who assert that effective communication is essential for promoting safety awareness and mitigating risks. The findings of this research confirm the pivotal roles of leadership, morale, and shared safety values in enhancing organizational safety standards. Through the consistent application of social exchange theory, this study provides a nuanced understanding of how workplace harmony—driven by leadership and a passion for safety—sustains high

safety performance. These insights contribute to the growing body of theoretical research in the construction industry, offering valuable implications for both practice and policy.

5.3. Practical and Managerial Implications

This study provides valuable insights into evaluating various aspects of safety performance at construction sites [3]. Effective management support and trust in the workplace are key factors in enhancing the safety of construction environments [4]. The findings underscore the importance of promoting safety leadership among employees and selecting leaders who are capable of fostering safety leadership within the workforce. This process involves identifying key behaviors and characteristics that signal strong safety leadership potential [20]. Consequently, safety leadership positively influences safety behavior, contributing to a reduction in worksite hazards [33].

Furthermore, management must seek regular feedback, plan safety measures for workers, and actively engage in decision-making processes [35,92]. Modern technologies should be leveraged to improve safety by minimizing human risks and closely monitoring construction sites. Technologies such as safety tracking devices and real-time monitoring systems are instrumental in reducing workplace risks and improving safety performance. Site managers can monitor hazards in real time using technologies like the Internet of Things (IoT), which facilitates immediate feedback to workers and reinforces a proactive safety culture, as recommended by Khairy et al. [4]. As noted by Draghici et al. [33], participatory leadership enhances trust and encourages employees to adhere to safety practices, thereby reducing incidents.

Training programs should focus not only on developing technical skills but also on fostering safety behaviors. This holistic approach enables employees to internalize safety practices and transform mere compliance into shared responsibility. By aligning these initiatives with organizational goals, efficiency is improved while also supporting sustainable practices within the construction industry, as emphasized by Abeje and Luo [35]. The implementation of these advanced practices, combined with strong safety leadership and clear communication protocols, will enable Turkish construction sites to achieve higher safety standards and organizational resilience.

5.4. Limitations and Future Studies

This study provides valuable insights into the relationships between safety leadership, employee morale, harmonious safety passion, and safety performance within the construction sector in Turkey. However, several limitations must be acknowledged. First, the data were collected through convenience sampling and self-reported questionnaires, which may introduce response bias and limit the generalizability of the findings. Future studies should consider using random sampling techniques and exploring alternative data collection methods, such as structured interviews or observational studies, to enhance the validity and reliability of the data.

Second, this study's cross-sectional design limited its ability to draw causal inferences. Longitudinal studies are recommended to provide a more comprehensive understanding of the dynamic relationships among variables over time. Such an approach would allow researchers to assess how safety leadership and harmonious safety passion evolve and influence employee morale and safety performance during various project phases.

Third, this study was confined to the construction sector in Istanbul and Ankara, which may not fully capture the diversity of safety practices and cultural nuances across other regions or industries. Expanding this study to include additional industries and geographic locations would offer a more holistic understanding of the applicability of the proposed model.

Additionally, while this study primarily relied on social exchange theory to interpret its findings, incorporating alternative theoretical frameworks, such as transformational leadership theory or self-determination theory, could provide deeper insights into the complex interplay between leadership, morale, and safety outcomes.

Finally, future research should explore additional moderating and mediating variables, such as organizational culture, team cohesion, and psychological safety, to further elucidate the mechanisms underlying the relationships identified in this study. The integration of advanced technologies, such as wearable devices for real-time monitoring, could also enhance the practical implications of future studies.

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Data Availability Statement: The original contributions presented in the study are included in the article, further inquiries can be directed to the corresponding author.

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Appendix A. Survey Items

Safety leadership Zohar [67]
1. My supervisor says good words whenever a job is done according to the safety rules
2. My supervisor seriously considers any worker's suggestions for improving safety.
3. My supervisor approaches workers during work to discuss safety issues.
4. My supervisor gets annoyed with workers ignoring safety and even minor rules.
5. My supervisor watches more often when a worker has violated some safety rule
6. As long as there is no accident, my supervisor doesn't care how the work is done (R).
7. Whenever pressure builds up, my supervisor wants us to work faster rather than by the rules (R).
8. My supervisor pays less attention to safety problems than most other supervisors in this company (R).
9. My supervisor only keeps track of major safety problems and overlooks routine problems (R).
10. As long as work remains on schedule, my supervisor doesn't care how this has been achieved (R)
Employee Morale Rotimi et al. [68]
In your current or previous construction-related job, how often do you experience the following consequences?
1. Feeling marginalized (feeling powerless, having low confidence)
2. Feeling excluded (lack of feeling accepted or fitting in)
3. Feelings of incompetence

4. Job insecurity (the feeling that your job may be at risk)
5. Changing body image
Harmonious safety passion Ali et al. [42]
1. I am passionate to devote time and energy to preserving workplace safety
2. I have a burning quest for preserving the safety environment
3. I enjoy engaging in safety-friendly behaviors in the workplace
4. I am passionate about the safety at work
5. I get pleasure from taking care of the safety of the self and others at the workplace
Safety performance Neal and Griffin [69]
1. I use all the necessary safety equipment to do my job
2. I use the correct safety procedures for carrying out my job
3. I ensure the highest levels of safety when I carry out my job
4. I put in extra effort to improve the safety of the workplace
5. I voluntarily carry out tasks or activities that help to improve workplace safety

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