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The Impact of Quality Management on Employee Retention and Turnover Intention in Small and Medium-Sized Enterprises

ABSTRACT

In today's fast-paced and highly competitive environment, small and medium-sized enterprises (SMEs) play a crucial role in the economic development of countries. However, one of the major challenges facing these organizations is employee retention and the prevention of workforce turnover. Employee turnover is a complex and multifaceted phenomenon that can lead to reduced productivity, increased recruitment and training costs, and the erosion of an organization's competitive advantage. In this context, quality management, as one of the fundamental components of organizational performance improvement, can play a significant role in enhancing job satisfaction, increasing organizational commitment, and ultimately reducing turnover rates. The primary objective of this study is to evaluate the role of quality management in human resource retention, with a particular focus on the factors influencing employees' turnover intentions in small and medium-sized enterprises. In other words, this study seeks to answer the key question of whether the implementation of quality management principles and practices can influence employees' decisions to remain with the organization. The research employed a descriptive-survey design. Data were collected using two standardized questionnaires: a Quality Management Questionnaire and a Turnover Intention Questionnaire, which measures employees' propensity to leave the organization. The study population for the turnover intention questionnaire consisted of employees working in active SMEs in Iran, while the study population for the quality management questionnaire consisted of managers of these organizations. To analyze the data, appropriate statistical models, including multiple regression analysis using the Enter method, were applied to examine the relationships among variables accurately. The statistical analyses indicate that all dimensions of the quality management system, including organizational structure, leadership, planning, support, operational activities, employee identification and training, empowerment, performance evaluation, and continuous improvement, are significantly associated with reduced employee turnover intention. These findings demonstrate that the implementation of comprehensive quality management processes not only enhances organizational performance but also serves as an effective strategy for controlling and reducing employee turnover rates. Overall, the results of this study emphasize the importance of quality management and demonstrate that improving quality across different organizational levels not only leads to enhanced operational performance but also serves as a critical factor in preserving organizational human capital and preventing employee turnover.

Keywords: Quality Management, Employee Turnover Intention, Human Resource Retention, Small and Medium-Sized Enterprises (SMEs).

Introduction

Employee retention has emerged as one of the most critical challenges facing contemporary organizations, particularly small and medium-sized enterprises (SMEs), which constitute the backbone of economic growth, employment generation, innovation, and regional development across both developed and developing economies. SMEs often operate under

conditions of resource constraints, intense competition, technological uncertainty, and rapidly evolving market demands, making the attraction, development, and retention of skilled employees a strategic imperative rather than merely a human resource function [1, 2]. In recent years, organizational scholars and practitioners have increasingly recognized that employee turnover is not only a human resource concern but also a significant strategic issue that directly affects organizational productivity, service quality, customer satisfaction, innovation capacity, and long-term competitiveness [3, 4]. The loss of experienced employees often results in substantial costs associated with recruitment, training, onboarding, knowledge transfer, and operational disruption. Consequently, understanding the organizational factors that influence employees' intentions to remain with or leave an organization has become a major priority for both researchers and managers.

Turnover intention is generally regarded as the strongest antecedent of actual turnover behavior and represents an employee's conscious and deliberate willingness to leave an organization in the foreseeable future. Research has consistently demonstrated that turnover intention is influenced by a wide range of organizational, managerial, psychological, and environmental factors, including compensation systems, leadership practices, organizational culture, career development opportunities, work environment quality, and human resource management practices [5, 6]. Within SMEs, these challenges are often intensified because smaller firms typically possess fewer financial and managerial resources than larger corporations, making them more vulnerable to workforce instability and talent shortages [7, 8]. As competition for skilled labor continues to intensify globally, SMEs increasingly seek organizational strategies that can strengthen employee commitment and reduce turnover-related risks.

One of the most promising yet relatively underexplored approaches to employee retention in SMEs is the implementation of quality management systems and quality-oriented organizational practices. Traditionally, quality management has been viewed primarily as a mechanism for improving operational efficiency, product quality, customer satisfaction, and organizational performance. However, contemporary perspectives increasingly emphasize that quality management extends beyond technical processes and encompasses leadership, employee involvement, continuous improvement, organizational learning, process optimization, and stakeholder engagement [9, 10]. Total Quality Management (TQM) and related quality frameworks promote systematic organizational practices that encourage employee participation, empowerment, communication, and performance evaluation, all of which may influence employees' perceptions of their workplace and their willingness to remain with the organization. Recent evidence suggests that quality management practices can enhance organizational effectiveness while simultaneously creating work environments characterized by fairness, support, trust, and continuous development opportunities [11, 12].

The theoretical relationship between quality management and employee retention can be explained through several complementary perspectives. From a social exchange perspective, employees are more likely to remain committed to organizations that demonstrate support, investment, and concern for their professional development. Quality management systems frequently incorporate mechanisms such as employee training, performance feedback, empowerment initiatives, and participative decision-making processes that strengthen employees' perceptions of organizational support and reciprocity [13, 14]. Similarly, organizational commitment theories suggest that employees who perceive their organizations as well-managed, fair, and improvement-oriented are more likely to develop emotional attachment and long-term commitment, thereby reducing turnover intention [3, 15]. These theoretical foundations imply that quality management may

indirectly influence employee retention by shaping organizational experiences that foster satisfaction, trust, and commitment.

The importance of quality management has become even more pronounced in modern business environments characterized by digital transformation, globalization, and sustainability pressures. Organizations increasingly recognize that sustainable competitive advantage depends not only on technological capabilities and financial resources but also on the ability to effectively manage human capital and organizational knowledge. Studies have highlighted the role of quality-oriented systems in supporting organizational learning, innovation, and adaptability, which are essential capabilities for long-term success [16, 17]. Effective quality management systems create structured environments where processes are clearly defined, responsibilities are transparent, performance is systematically monitored, and improvement initiatives are continuously pursued. Such environments may contribute to reduced uncertainty, enhanced role clarity, and improved employee confidence in organizational leadership.

Research on SMEs has increasingly emphasized the significance of human resource management practices in fostering organizational sustainability and employee retention. Formalized HRM systems, talent management initiatives, employer branding strategies, and employee development programs have all been identified as important determinants of organizational success and workforce stability [18-20]. Nevertheless, many SMEs continue to face challenges in implementing comprehensive HRM systems due to limited resources and managerial capacities. In such contexts, quality management frameworks may provide a practical and integrated approach for simultaneously improving organizational processes and employee experiences. By embedding employee-related practices within broader quality initiatives, SMEs may achieve both operational excellence and workforce retention objectives.

Empirical studies conducted across various countries and industries provide growing evidence regarding the interconnectedness of organizational quality, employee management, and organizational performance. For example, customer-centered quality management approaches have been shown to enhance organizational excellence and strengthen stakeholder relationships [9]. Similarly, studies investigating innovation and business excellence emphasize the importance of structured management systems and continuous improvement processes in supporting organizational competitiveness [16, 21]. Research on sustainable supply chain management and organizational sustainability further suggests that organizations characterized by systematic management practices tend to exhibit stronger performance outcomes and greater resilience to environmental challenges [22, 23]. Although these studies primarily focus on organizational outcomes, their findings imply that quality-oriented environments may also contribute to positive employee outcomes, including reduced turnover intention.

Another important consideration is the role of leadership within quality management systems. Leadership has consistently been identified as a central component of organizational success and employee retention. Quality management frameworks emphasize leadership commitment, strategic planning, communication, employee involvement, and organizational support as essential elements of successful implementation. Previous research has demonstrated that leadership quality significantly influences employee attitudes, motivation, engagement, and organizational commitment [24, 25]. Leaders who actively promote quality principles and support continuous improvement initiatives can create organizational cultures characterized by trust, transparency, and collaboration, thereby strengthening employees' intentions to remain within the organization.

Employee empowerment and training also represent important dimensions linking quality management to retention outcomes. Quality-oriented organizations often invest in employee development through structured training programs, competency enhancement initiatives, and opportunities for professional growth. Such investments not only improve employee capabilities but also signal organizational commitment to employee success. Research has shown that talent management and employee development practices contribute significantly to organizational performance, employee engagement, and retention outcomes [14, 26]. Furthermore, organizations that successfully align talent management strategies with broader organizational objectives are better positioned to attract, develop, and retain high-performing employees [13, 19].

Despite the growing body of literature addressing quality management, human resource management, and employee retention, several gaps remain. First, much of the existing research has examined these constructs independently rather than exploring their integrated relationships. Second, while numerous studies have investigated quality management outcomes such as productivity, customer satisfaction, innovation, and financial performance, relatively fewer studies have focused specifically on the impact of quality management dimensions on employees' turnover intentions, particularly within SME contexts [10, 27]. Third, the majority of prior research has concentrated on large organizations, despite the fact that SMEs face unique managerial challenges and resource constraints that may influence the effectiveness of quality management initiatives [4, 28]. Consequently, there remains a need for empirical evidence examining how specific dimensions of quality management contribute to employee retention within small and medium-sized enterprises.

Moreover, contemporary business environments increasingly demand integrated approaches that simultaneously address organizational performance, employee well-being, and sustainability objectives. Organizations are expected to maintain high standards of quality while also fostering positive employee experiences and supporting long-term organizational resilience. Quality management systems may provide a valuable framework for achieving these interconnected objectives because they emphasize continuous improvement, stakeholder satisfaction, employee participation, and systematic organizational development [9, 11]. Understanding which dimensions of quality management exert the strongest influence on turnover intention can therefore provide practical guidance for managers seeking to improve both organizational effectiveness and employee retention.

Given the strategic importance of human capital for SME competitiveness and sustainability, identifying organizational mechanisms that reduce turnover intention has substantial theoretical and practical significance. Existing evidence highlights the importance of managerial competencies, organizational commitment, talent management, employee motivation, and quality-oriented practices in shaping workforce outcomes [1, 6, 15]. However, the relative contributions of specific quality management dimensions—including organizational structure, leadership, planning, support, operations, training, empowerment, performance evaluation, and continuous improvement—to employee turnover intention remain insufficiently understood, particularly in the context of SMEs.

Therefore, the aim of this study is to examine the impact of quality management dimensions on employee turnover intention in small and medium-sized enterprises and to determine the extent to which quality management practices contribute to employee retention within these organizations

Methodology

This study was conducted to analyze the effect of quality management dimensions on employees' turnover intention in small and medium-sized enterprises (SMEs). Using the "research onion" model proposed by Saunders et al. (2016), this study follows the positivist philosophy, which emphasizes objective measurement of variables and the identification of causal laws. The adopted strategy is a survey strategy, and the research approach is deductive, in the sense that the hypotheses were derived from previous theoretical foundations and tested through quantitative data. This study was designed as a cross-sectional study to provide an accurate picture of the current status of the selected organizations within a specific period. The statistical population included employees and managers of small and medium-sized enterprises operating in various industries, including food, polymer, and electronics industries, which had at least one year of experience in implementing quality management systems. Among the 50 identified organizations, 48 organizations were selected through random sampling and participated in the study. Ultimately, 193 responses from employees and 93 responses from managers were collected and prepared for final analysis.

The main data collection instruments included two standardized questionnaires: a Quality Management Questionnaire consisting of 42 items across 9 specialized dimensions, and a Turnover Intention Questionnaire consisting of 15 standardized items. Both instruments were designed based on a five-point Likert scale. The content validity of the instruments was confirmed by experts in industrial management, and their reliability was established using Cronbach's alpha coefficient: 0.82 for the Quality Management Questionnaire and 0.88 for the Turnover Intention Questionnaire, indicating the high precision of the instruments. In accordance with research ethics considerations, the participation of all individuals was voluntary, and the principle of data confidentiality was fully observed. Data analysis was performed using SPSS version 26. First, descriptive statistics were used to describe the characteristics of the sample. Then, to examine precisely the effect of quality management dimensions on turnover intention, multiple linear regression analysis using the Enter method was employed. To ensure the validity and goodness of fit of the model, classical assumptions, including the independence of errors using the Durbin–Watson test and the absence of multicollinearity using the VIF index, were carefully assessed and confirmed to ensure that the results obtained from the model had the necessary explanatory power and statistical validity for generalization to the level of small and medium-sized enterprises.

Findings and Results

This section describes the general characteristics of the respondents, which provides the necessary context for a better understanding of the research results. In terms of organizational type, 28 respondents (30.1%) were from public organizations and 65 respondents (69.9%) were from private organizations, indicating that the main focus of the study was on the private sector and the prominent role of quality systems in this sector. Regarding organizational position, 9 respondents (9.7%) were Chief Executive Officers or Deputy CEOs, 24 respondents (25.8%) were Finance, Commercial, or Sales Managers, 36 respondents (38.7%) were Production, Quality, HSE, or Technical Managers, and 24 respondents (25.8%) were Experts, Supervisors, or held other positions; thus, the largest group consisted of managers in operational and technical core areas who were directly involved in implementing and maintaining the quality management system. In terms of age, 11 respondents (11.8%) were under 30 years old, 33 respondents (35.5%) were between 31 and 40 years old, 33 respondents (35.5%) were between 41 and 50 years old, and 16 respondents (17.2%) were over 50 years old, showing that more than 88%

of respondents were between 31 and 50 years old. Regarding educational level, 4 respondents (4.3%) held a diploma or associate degree, 32 respondents (34.4%) held a bachelor's degree, 45 respondents (48.4%) held a master's degree, and 12 respondents (12.9%) held a doctoral degree, indicating that approximately 96% of respondents had a university degree at the bachelor's level or higher. In terms of work experience, 10 respondents (10.8%) had less than 5 years of experience, 20 respondents (21.5%) had 5–10 years, 23 respondents (24.7%) had 10–15 years, 21 respondents (22.6%) had 15–20 years, and 19 respondents (20.4%) had more than 20 years of experience, showing that nearly 70% of respondents had more than 10 years of work experience. The company-level analysis was conducted based on 48 companies participating in the study. In terms of ownership, 39 companies (81.2%) were private and 9 companies (18.8%) were public, showing that the vast majority of sampled companies belonged to the private sector. In terms of activity, 24 companies (50%) were manufacturing firms, 22 companies (45.8%) were service firms, and 2 companies (4.2%) had unspecified activity, indicating a relatively balanced distribution between manufacturing and service companies. The combined distribution of company type and activity showed that among 46 companies with specified activity, 22 private companies and 2 public companies were manufacturing firms, while 15 private companies and 7 public companies were service firms; therefore, most manufacturing companies were private, whereas public companies were mainly active in the service sector, and the two companies with unspecified activity were excluded from this combined classification.

This section describes the main research variables, namely quality management system constructs and turnover intention. Mean, as an index of central tendency, and standard deviation, as an index of dispersion, were used for analysis.

The data in this section were collected using a questionnaire based on the Baldrige/EFQM model and a five-point Likert scale, where 1 indicated the lowest level of agreement and 5 indicated the highest level of agreement.

Table 1

Descriptive Indices of Quality Management System Variables

Variable / Construct	Number of Items	Mean	Standard Deviation	Status
Organizational Structure (OS)	4	3.43	0.87	Moderate to high
Leadership (LDR)	7	3.68	0.92	Moderate to high
Planning (PLN)	4	3.55	0.96	Moderate to high
Support (SUP)	7	3.51	0.89	Moderate to high
Operations (OPR)	4	3.64	0.91	Moderate to high
Identification and Training (CT)	2	3.61	1.02	Moderate to high
Empowerment (ET)	3	3.51	1.05	Moderate to high
Performance Evaluation (PE)	6	3.59	0.94	Moderate to high
Improvement (IMP)	5	3.65	0.97	Moderate to high
Total Quality Management System	42	3.59	0.84	Moderate to high

The overall mean of the quality management system was 3.59, which is higher than the theoretical mean of 3. This indicates that, from the respondents' perspective, the quality management system status in the studied organizations is evaluated as "acceptable and moving toward good."

The highest means belonged to the constructs of "Leadership" (3.68) and "Improvement" (3.65). This indicates that the role and commitment of senior management, as well as continuous improvement processes, are considered strengths of the system in the sampled organizations.

The lowest mean belonged to the construct of "Organizational Structure" (3.43). This may indicate challenges related to unclear goals, imprecise process definitions, or insufficient review of the organizational structure.

The standard deviation values for all constructs were relatively high and close to 1. This indicates a relative dispersion in respondents' opinions; in other words, there is no complete consensus in evaluating the current status, and differences in perspectives exist across organizations or even among individuals within the same organization.

The data in this section were also measured using a five-point Likert scale, where 1 indicated the lowest level and 5 indicated the highest level. These data were collected at the organizational level across 48 companies, and the mean score of each company was calculated.

Table 2

Overall Descriptive Indices of the Company-Level Turnover Intention Variable

Index	Value
Overall mean of turnover intention	3.12
Overall standard deviation	0.89
Minimum mean score for one company	1.87
Maximum mean score for one company	4.40
Range	2.53

The overall mean of turnover intention was 3.12, which is slightly above the midpoint of the scale, namely 3. This indicates that, overall, the level of this phenomenon among the sampled companies is evaluated as "moderate."

The relatively high standard deviation (0.89), and particularly the very wide range (2.53) between the lowest and highest values, indicate substantial differences among different organizations. While turnover intention is very low in some organizations (1.87), others are facing a human resource retention crisis and a very high tendency toward leaving the organization (4.40). This finding emphasizes the importance of examining organization-specific factors.

Table 3

Ranking the Mean Scores of Factors Affecting Turnover Intention

Factor	Mean	Rank
Financial dissatisfaction (Q14)	3.85	1
Lack of career advancement opportunities (Q2)	3.31	2
Lack of interest in the workplace (Q1)	3.16	3
Job stress (Q12)	3.08	4
Turnover intention (Q3, Q4, Q5)	3.03	5
Limited welfare benefits (Q11)	2.97	6
Monotony of the work environment (Q15)	2.38	7
Tension among employees (Q13)	1.76	8

The examination of the mean scores of different factors shows that "financial dissatisfaction," with a considerable margin (3.85), is the strongest motivational factor for turnover among the studied sample. It is followed by "lack of opportunities for progress and promotion" and "lack of interest in the work environment." Interestingly, the mean score of the direct items measuring "turnover intention" itself (3.03) is lower than the mean scores of these key factors. This may indicate that although employees experience dissatisfaction, they have not yet made a definite decision to leave. Factors related to interpersonal relationships, namely tension, had the lowest mean score and therefore the smallest contribution to this phenomenon.

Before conducting any inferential analysis, it is necessary to examine the reliability of the questionnaires and the normality of data distribution to ensure the validity of the results obtained from parametric tests.

Cronbach's alpha is an index used to assess the internal consistency of the items of a construct. Values above 0.70 indicate acceptable reliability.

The reliability of each construct of the Quality Management Questionnaire was calculated as follows:

Table 4

Reliability of the Quality Management Questionnaire

No.	Construct	Number of Items	Cronbach's Alpha Coefficient	Reliability Status
1	Organizational Structure (OS)	4	0.843	Excellent
2	Leadership (LDR)	7	0.923	Excellent
3	Planning (PLN)	4	0.872	Excellent
4	Support (SUP)	7	0.901	Excellent
5	Operations (OPR)	4	0.865	Excellent
6	Identification and Training (CT)	2	0.891	Excellent
7	Empowerment (ET)	3	0.912	Excellent
8	Performance Evaluation (PE)	6	0.928	Excellent
9	Improvement (IMP)	5	0.906	Excellent
10	Total Quality Management Questionnaire	42	0.972	Excellent

As shown, Cronbach's alpha coefficient for all constructs, as well as for the total questionnaire, is much higher than the minimum standard of 0.70. This indicates very high internal consistency among the items of each construct and the excellent reliability of the research questionnaire. Therefore, the collected data have high reliability for subsequent analyses.

The reliability of this questionnaire was also calculated based on its 15 items.

Table 5

Reliability of the Turnover Intention Questionnaire

Questionnaire	Number of Items	Cronbach's Alpha Coefficient	Reliability Status
Turnover Intention	15	0.934	Excellent

Cronbach's alpha coefficient for the Turnover Intention Questionnaire was also 0.934, indicating the very high and acceptable reliability of this questionnaire.

The Kolmogorov–Smirnov (K-S) normality test was used to examine whether the data were normally distributed. The hypotheses of this test are as follows:

H0: The data are normally distributed.

H1: The data are not normally distributed.

If the significance level (Sig.) is greater than 0.05, the null hypothesis is not rejected, and the normality of the data is accepted.

Table 6

Results of the Kolmogorov–Smirnov Normality Test for Quality Management Variables

No.	Variable / Construct	K-S Statistic	Significance Level (Sig.)	Result
1	Organizational Structure (OS)	0.098	0.018	Normality rejected
2	Leadership (LDR)	0.088	0.045	Normality rejected
3	Planning (PLN)	0.104	0.009	Normality rejected
4	Support (SUP)	0.091	0.033	Normality rejected
5	Operations (OPR)	0.096	0.021	Normality rejected
6	Identification and Training (CT)	0.112	0.003	Normality rejected
7	Empowerment (ET)	0.106	0.007	Normality rejected
8	Performance Evaluation (PE)	0.085	0.058	Normality confirmed
9	Improvement (IMP)	0.078	0.112	Normality confirmed
10	Turnover Intention	0.121	0.001	Normality rejected
11	Total Quality Management System	0.081	0.077	Normality confirmed

As shown in the table above, the significance level (Sig.) for most of the main constructs, including OS, LDR, PLN, SUP, OPR, CT, and ET, is less than 0.05. This clearly indicates the rejection of the null hypothesis, meaning the normality of data distribution is rejected for these constructs. Exceptions include only Performance Evaluation (PE), Improvement (IMP), and the total quality management system, whose significance levels are greater than 0.05, indicating their normal distribution. In addition, the turnover intention variable also does not follow a normal distribution, with a significance level of 0.001.

Several strategies are available for continuing the analysis and addressing the challenges related to data normality. First, the relatively large sample size (N = 93) is one of the strengths of the analysis. According to the Central Limit Theorem, in large samples, usually n > 30, the distribution of sample means tends toward normality. Therefore, even if the raw data are not normally distributed, parametric tests may still be used for data analysis.

In the next stage, to ensure greater robustness and manage analyses that are more sensitive to normality assumptions, the use of nonparametric equivalents is recommended. For example, Spearman's test may be used instead of Pearson's correlation, the Mann–Whitney U test instead of the independent-samples t-test, the Wilcoxon test instead of the paired-samples t-test, and the Kruskal–Wallis test instead of ANOVA. Finally, since only some constructs are nonnormally distributed while others are normally distributed, a mixed analytical strategy may be applied.

Using the Kolmogorov–Smirnov (K-S) test, the normality of the distribution of the turnover intention variable was examined. The results are as follows:

Table 7

Results of the Normality Test for the Turnover Intention Variable

Variable	K-S Statistic	Significance Level (Sig.)	Result
Turnover Intention	0.121	0.001	Normality rejected

Since the significance level is less than 0.05 (0.001 < 0.05), the assumption of normality for the turnover intention variable is rejected. Therefore, nonparametric tests were used for subsequent analyses.

In summary, the reliability of all research instruments was confirmed, and these instruments had very high reliability. However, the normality of the data was rejected for most constructs. Nevertheless, given the appropriate sample size, the use of parametric methods for data analysis is possible. In the following sections, both parametric and nonparametric methods are used complementarily to enhance the validity of the results.

Spearman's correlation coefficient was used to examine the relationship between the research variables. This choice was made because the normality assumption was rejected for many variables, as reported in Section 4-3-2, and because of the ordinal nature of the data scale.

The following table presents the Spearman correlation matrix between all nine dimensions of the quality management system and the turnover intention variable.

Table 8

Spearman Correlation Matrix Between Quality Management System Dimensions and Turnover Intention

Construct / Variable	1	2	3	4	5	6	7	8	9	10
Organizational Structure (OS)	1									
Leadership (LDR)	.724** (0.000)	1								
Planning (PLN)	.691** (0.000)	.802** (0.000)	1							
Support (SUP)	.653** (0.000)	.783** (0.000)	.765** (0.000)	1						
Operations (OPR)	.621** (0.000)	.745** (0.000)	.731** (0.000)	.788** (0.000)	1					
Training (CT)	.598** (0.000)	.701** (0.000)	.688** (0.000)	.732** (0.000)	.710** (0.000)	1				
Empowerment (ET)	.567** (0.000)	.682** (0.000)	.665** (0.000)	.703** (0.000)	.694** (0.000)	.751** (0.000)	1			
Performance Evaluation (PE)	.634** (0.000)	.769** (0.000)	.754** (0.000)	.801** (0.000)	.773** (0.000)	.720** (0.000)	.692** (0.000)	1		
Improvement (IMP)	.657** (0.000)	.781** (0.000)	.768** (0.000)	.812** (0.000)	.785** (0.000)	.738** (0.000)	.710** (0.000)	.845** (0.000)	1	
Turnover Intention	-.512** (0.000)	-.593** (0.000)	-.576** (0.000)	-.604** (0.000)	-.588** (0.000)	-.561** (0.000)	-.534** (0.000)	-.611** (0.000)	-.625** (0.000)	1

The results presented in Table 8 provide highly important information in two main areas. First, the internal correlations among the dimensions of the quality management system were examined. In this section, it is shown that all correlation coefficients among the nine dimensions of the quality management system are positive, strong, and significant at the 0.01 level. These correlation coefficients range from 0.567, between organizational structure and empowerment, to 0.845, between performance evaluation and improvement. The strong and positive pattern of these correlations indicates that although these dimensions are distinct, they are systematically related to each other and form an integrated and coherent system. In other words, the successful implementation of one dimension is directly associated with the successful implementation of other dimensions.

All quality dimensions have strong positive correlations with each other, which is clearly reflected in the upper-left section of the matrix. On the other hand, the negative relationship between quality management system dimensions and turnover intention is clearly observable in the lower section of the matrix; this section clearly shows that all quality management system dimensions have an inverse relationship with turnover intention. Finally, the strongest negative relationship in this matrix corresponds to the intersection between “Improvement (IMP)” and “Turnover Intention,” which visually confirms the strongest negative relationship in this analysis.

Multiple linear regression analysis was used to assess the predictive power of quality management system dimensions for the criterion variable, namely turnover intention, and to identify the contribution of the most influential variables. Given the nonnormal distribution of the data reported in Section 4-3-2, the bootstrap technique with 5,000 resamples was used to ensure the reliability and robustness of the model estimates.

The regression model is defined as follows:

$$\text{Turnover Intention} = \beta_0 + \beta_1(OS) + \beta_2(LDR) + \beta_3(PLN) + \beta_4(SUP) + \beta_5(OPR) + \beta_6(CT) + \beta_7(ET) + \beta_8(PE) + \beta_9(IMP) + e$$

First, the overall ability of the model to predict the dependent variable was examined.

Table 9

Regression Model Summary

Index	Value
Multiple Correlation Coefficient (R)	0.721
Coefficient of Determination (R^2)	0.520
Adjusted Coefficient of Determination (Adjusted R^2)	0.477
Standard Error of the Estimate	0.601
Durbin–Watson Statistic	1.892

The multiple correlation coefficient (R = 0.721) indicates a strong and positive relationship between the linear combination of independent variables and the dependent variable.

The coefficient of determination (R^2 = 0.520) indicates that 52.0% of the variance in turnover intention is explained by the nine dimensions of the quality management system. This value indicates good to excellent predictive power of the model.

The adjusted coefficient of determination (0.477), adjusted for the number of predictor variables, still shows a high value and emphasizes the robustness of the model.

The Durbin–Watson statistic (1.892), which is close to 2, indicates the absence of autocorrelation among errors. Therefore, one of the key assumptions of regression is satisfied.

At this stage, the statistical significance of the overall regression model was tested.

The hypotheses of the ANOVA test were as follows:

H_o: All regression coefficients are simultaneously equal to zero. The model is not valid.

H_1: At least one regression coefficient is different from zero. The model is significant.

Table 10

Analysis of Variance (ANOVA) for the Regression Model

Source of Variation	Sum of Squares	Degrees of Freedom (df)	Mean Square	F	Significance Level (Sig.)
Regression	53.541	9	5.949	16.473	.000
Residual	49.422	83	0.361		
Total	102.963	92			

Given the significance level (Sig. = 0.000), which is far less than 0.05, the null hypothesis is rejected. It is concluded that the regression model is generally significant, $F(9, 83) = 16.473$, $p < 0.001$. This means that the linear combination of independent variables, namely the dimensions of the quality management system, can significantly predict the dependent variable, namely turnover intention.

In this section, the unique contribution of each predictor variable in the model was examined after controlling for the other variables.

Table 11

Regression Coefficients and Bootstrap Results

Predictor Variable	B	Standard Error	Standardized Coefficient (β)	t	Sig.	Bootstrap 95% CI Lower Bound	Bootstrap 95% CI Upper Bound
Constant	8.224	0.521		15.782	.000	7.112	9.412
Organizational Structure (Araújo, n.d.)	-0.087	0.051	-0.112	-1.707	.092	-0.192	0.018
Leadership (LDR)	-0.095	0.064	-0.125	-1.484	.142	-0.231	0.041
Planning (PLN)	-0.104	0.061	-0.131	-1.705	.092	-0.229	0.021

Support (Ghani, n.d.)	-0.121	0.067	-0.148	-1.806	.075	-0.261	0.019
Operations (OPR)	-0.088	0.055	-0.115	-1.600	.113	-0.201	0.025
Training (CT)	-0.065	0.042	-0.095	-1.548	.126	-0.151	0.021
Empowerment (Betlloch-Mas et al., n.d.)	-0.031	0.039	-0.046	-0.795	.429	-0.112	0.050
Performance Evaluation (Betlloch-Mas et al., n.d.)	-0.152	0.062	-0.194	-2.452	.016	-0.281	-0.023
Improvement (IMP)	-0.174	0.065	-0.218	-2.677	.009	-0.310	-0.038

The standardized coefficients (β) indicate the direction and strength of the unique relationship between each variable and the dependent variable after removing the effects of other variables. The two variables of Improvement (β = -0.218) and Performance Evaluation (β = -0.194) had the largest standardized coefficients, indicating that these two variables are the strongest negative predictors of turnover intention.

In terms of significance, only the coefficients for Performance Evaluation (p = 0.016) and Improvement (p = 0.009) were significant at the 95% confidence level (α = 0.05). This means that these two variables have a unique and significant contribution to predicting turnover intention.

Other variables, such as leadership, planning, support, and related dimensions, despite having negative relationships in the correlation matrix, did not show a significant unique contribution when the effects of other variables, particularly “Performance Evaluation” and “Improvement,” were controlled. This phenomenon may be due to high multicollinearity among these variables, such that their shared variance in predicting turnover intention overlaps.

The bootstrap results show that the 95% confidence intervals for the coefficients of the two significant variables, namely Performance Evaluation and Improvement, do not include zero, as both the lower and upper bounds are negative. This confirms the significance of the results and strengthens the reliability of these estimates.

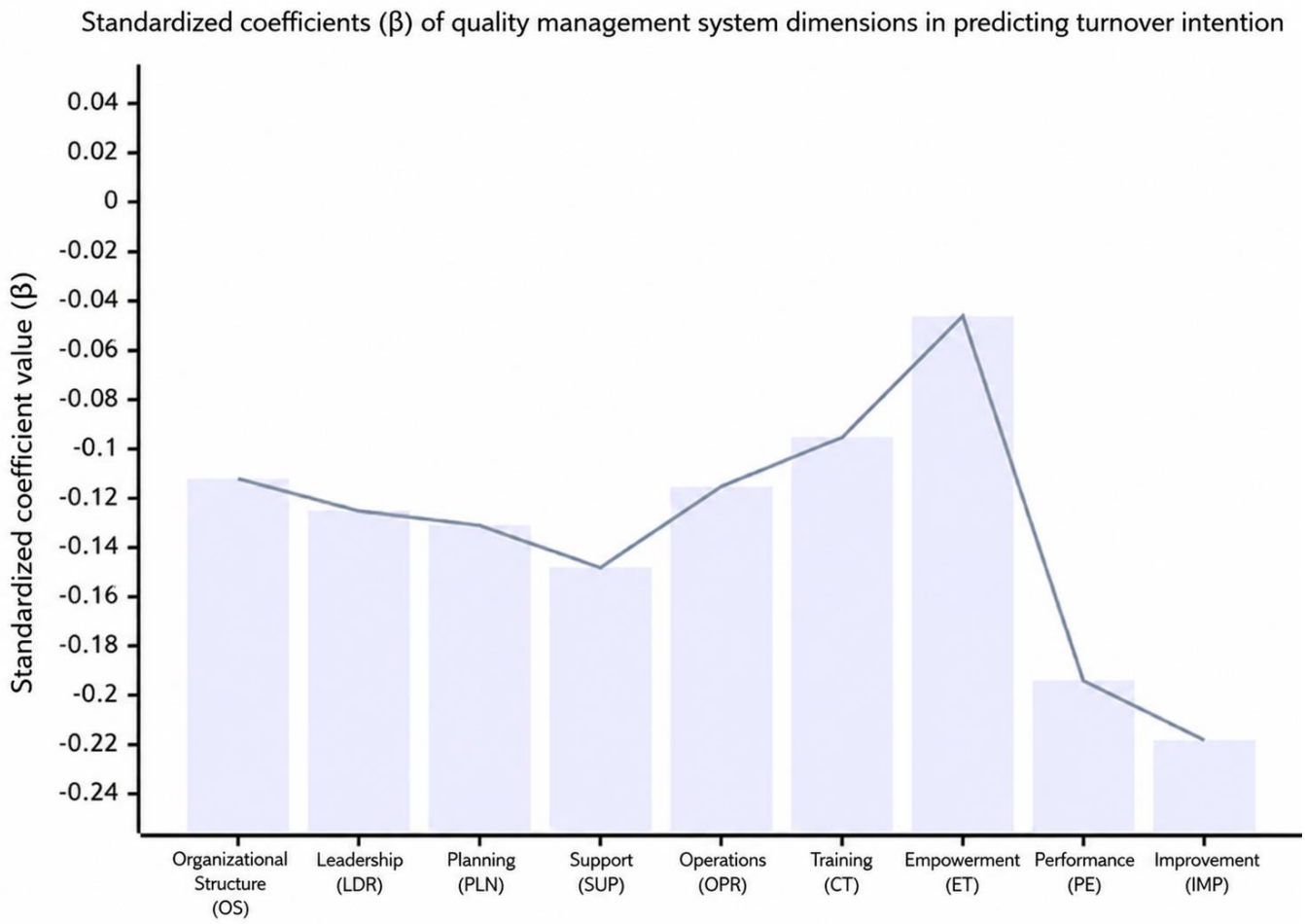
The designed regression model generally has a significant ability to predict turnover intention and explains approximately 52% of its variance.

Among all dimensions of the quality management system, only the two dimensions of “Improvement (IMP)” and “Performance Evaluation” uniquely and significantly predicted a reduction in turnover intention. This finding indicates that the existence of a continuous improvement cycle and a fair performance evaluation system is more effective than other dimensions in retaining human resources.

Although the other dimensions are generally related to turnover intention, their direct and independent contributions become weaker when the contributions of the two key dimensions mentioned above are considered. This emphasizes the importance of viewing the quality management system as an integrated whole whose effects are revealed through the complex interaction of its dimensions.

Figure 1

Standardized Coefficients of the Nine Dimensions of the Quality Management System



This chart visually displays the standardized coefficients (Beta) for each of the nine dimensions of the quality management system, extracted from Table 11. This presentation clearly shows which variables have the greatest effect in predicting turnover intention and whether this effect is positive or negative. The Y-axis represents the standardized coefficient (β), which may be positive or negative. Each blue bar represents one dimension of the quality management system. Bars located in the negative area, below the zero line, indicate an inverse relationship with turnover intention. Since all bars are located in the negative area, it can be stated that all dimensions have a reducing effect. The length of each bar also serves as an indicator of the strength and importance of each variable in predicting the dependent variable; the longer the bar, the greater the contribution of that variable in the model. In addition, the two variables of "Improvement (IMP)" and "Performance Evaluation" (Betlloch-Mas et al., n.d.) have unique and significant contributions, and these two variables are clearly identifiable by the longest bars.

In this section, differences in the mean turnover intention based on demographic grouping variables are examined. Since the distribution of turnover intention data was not normal, as reported in Section 4-3-2, equivalent nonparametric tests were used. The Mann–Whitney U test was used to compare two groups, and the Kruskal–Wallis H test was used to compare more than two groups.

Sub-hypothesis 1: There is a significant difference between the mean turnover intention in public and private companies.

Table 12

Results of the Mann–Whitney U Test for Comparing Turnover Intention Based on Company Type

Group	Number (N)	Mean Rank	Sum of Ranks	Mann–Whitney U	Z	Significance Level (Sig.)
Public	9	16.61	149.50	89.50	-2.107	0.035
Private	35	26.69	934.50			

Given the significance level (Sig. = 0.035), which is less than 0.05, the null hypothesis is rejected. Therefore, there is a statistically significant difference in mean turnover intention across different types of companies, and turnover intention is significantly higher in private companies than in public companies.

Sub-hypothesis 2: There is a significant difference between the mean turnover intention in manufacturing and service companies.

Table 13

Results of the Mann–Whitney U Test for Comparing Turnover Intention Based on Type of Activity

Group	Number (N)	Mean Rank	Sum of Ranks	Mann–Whitney U	Z	Significance Level (Sig.)
Manufacturing	24	27.21	653.00	200.000	-1.987	0.047
Service	22	19.59	431.00			

Given the significance level (Sig. = 0.047), which is less than 0.05, the null hypothesis is rejected. Therefore, there is a statistically significant difference between the mean turnover intention in manufacturing and service companies. Comparison of the mean ranks shows that this tendency is significantly higher in manufacturing companies (27.21) than in service companies (19.59). This may be due to more difficult working conditions, the physical work environment, and stress arising from production processes.

Sub-hypothesis 3: There is a significant difference between the mean turnover intention across different educational levels.

Table 14

Results of the Kruskal–Wallis Test for Comparing Turnover Intention Based on Educational Level

Educational Level	Number (N)	Mean Rank	Chi-Square	Degrees of Freedom (df)	Significance Level (Sig.)
Diploma and Associate Degree	4	18.50	1.245	3	0.742
Bachelor's Degree	32	25.66			
Master's Degree	45	23.58			
Doctoral Degree	12	22.71			

Given the significance level (Sig. = 0.742), which is greater than 0.05, the null hypothesis is not rejected. Therefore, there is no statistically significant difference in mean turnover intention across different educational levels.

Sub-hypothesis 4: There is a significant difference between the mean turnover intention across different work experience groups.

Table 15

Results of the Kruskal–Wallis Test for Comparing Turnover Intention Based on Work Experience

Work Experience	Number (N)	Mean Rank	Chi-Square	Degrees of Freedom (df)	Significance Level (Sig.)
Less than 5 years	10	28.90	4.576	4	0.334
5–10 years	20	21.70			
10–15 years	23	25.07			
15–20 years	21	22.71			
More than 20 years	19	22.87			

Given the significance level (Sig. = 0.334), which is greater than 0.05, the null hypothesis is not rejected. Therefore, there is no statistically significant difference in mean turnover intention across different work experience groups.

Discussion and Conclusion

The findings of the present study provide compelling evidence that quality management constitutes a significant organizational mechanism for reducing employees' turnover intention within small and medium-sized enterprises (SMEs). The descriptive results indicated that the overall quality management system was evaluated at a moderately high level by managers, with leadership and continuous improvement receiving the highest ratings among all dimensions. At the same time, turnover intention among employees was found to be at a moderate level, suggesting that while employees were not overwhelmingly inclined to leave their organizations, a meaningful risk of workforce instability remained. More importantly, the correlation analysis revealed that all nine dimensions of the quality management system were significantly and negatively associated with turnover intention. These findings suggest that improvements in organizational structure, leadership, planning, support, operations, training, empowerment, performance evaluation, and continuous improvement are accompanied by lower intentions among employees to leave their organizations. This overall pattern reinforces the view that employee retention should not be viewed solely as a human resource issue but rather as a multidimensional organizational outcome influenced by the effectiveness of broader management systems.

The results are consistent with the growing literature emphasizing the strategic role of organizational systems and management practices in employee retention. Previous research has demonstrated that organizations capable of developing coherent management systems, supportive work environments, and employee-centered practices tend to experience stronger workforce stability and organizational commitment [3, 15]. The present findings extend this body of knowledge by demonstrating that quality management dimensions collectively function as important predictors of employee retention within SMEs. This finding is particularly significant because SMEs often face greater challenges in retaining qualified employees due to limited financial resources, restricted career advancement opportunities, and intense competition for talent [7, 8]. Consequently, the implementation of quality management practices may serve as a practical and cost-effective strategy for strengthening employee commitment and reducing turnover-related costs.

The strong negative correlations observed between all quality management dimensions and turnover intention can be interpreted through the lens of social exchange theory and organizational support theory. Quality management systems generally foster clearer organizational structures, better communication channels, greater employee involvement, and more transparent decision-making processes. These characteristics increase employees' perceptions of fairness, organizational support, and procedural justice, thereby strengthening their attachment to the organization. Similar conclusions have been reported in studies highlighting the importance of talent management, employee development, and human resource practices in fostering organizational commitment and reducing turnover tendencies [13, 14, 24]. When employees perceive that their organization invests in systematic improvement and values their contributions, they are more likely to reciprocate through loyalty and long-term organizational membership.

An important finding of this study is that although all quality management dimensions exhibited significant bivariate relationships with turnover intention, only performance evaluation and continuous improvement emerged as significant predictors in the multiple regression model. Specifically, continuous improvement demonstrated the strongest unique

contribution, followed by performance evaluation. These findings suggest that while quality management functions as an integrated system, some dimensions play a more influential role than others in shaping employees' decisions regarding organizational retention. The significance of continuous improvement may stem from its capacity to create a dynamic organizational environment in which employees perceive opportunities for development, learning, innovation, and problem-solving. Organizations that continuously evaluate and refine their processes signal adaptability and future orientation, which can strengthen employees' confidence in organizational sustainability and career prospects. Similar arguments have been advanced in studies examining innovation management, business excellence, and organizational development, which emphasize that continuous improvement fosters organizational resilience and employee engagement [10, 11, 16].

The significant role of performance evaluation also deserves particular attention. Performance evaluation systems provide employees with feedback regarding expectations, achievements, competencies, and future development opportunities. Fair and transparent performance assessment systems enhance perceptions of justice and reduce ambiguity regarding organizational expectations. Employees who perceive performance evaluations as objective and developmental are more likely to experience motivation, satisfaction, and commitment. Conversely, inadequate evaluation systems may generate frustration, uncertainty, and dissatisfaction, thereby increasing turnover intentions. The present findings support previous research emphasizing the importance of formalized HRM systems and managerial practices in shaping employee attitudes and organizational outcomes [15, 18]. Furthermore, studies on talent management have consistently highlighted performance management as a critical mechanism through which organizations identify, develop, and retain valuable human resources [14, 19].

The lack of significant unique contributions for the remaining quality management dimensions in the regression analysis should not be interpreted as evidence of their irrelevance. Rather, these findings likely reflect the substantial intercorrelations among the quality management dimensions. The correlation matrix demonstrated strong positive relationships among all quality management constructs, indicating that these dimensions operate as interconnected components of a broader management system. In practical terms, leadership, planning, support, training, empowerment, and operational management reinforce one another and jointly contribute to organizational effectiveness. Similar conclusions have been reported by scholars who conceptualize quality management as a systemic and integrated framework rather than a collection of isolated practices [9, 27]. Consequently, the unique predictive power of continuous improvement and performance evaluation may reflect their role as the most direct mechanisms through which the broader quality management system influences employee retention.

The descriptive findings regarding the causes of turnover intention also provide valuable managerial insights. Financial dissatisfaction emerged as the strongest factor associated with turnover intention, followed by limited opportunities for career advancement and lack of interest in the work environment. These findings align with previous research demonstrating the critical role of compensation, motivation, and career development opportunities in employee retention decisions [6, 15]. Employees often evaluate their employment relationships through both economic and psychological lenses. While financial rewards remain important, opportunities for professional growth, meaningful work experiences, and organizational support are equally influential in determining whether employees choose to remain within an organization. The results therefore suggest that quality management systems may contribute to retention not only through operational improvements but also through the creation of developmental and supportive work environments.

The study also identified significant differences in turnover intention across organizational categories. Employees in private companies reported significantly higher turnover intention than those in public organizations. This finding may be explained by the greater employment security, stability, and predictability typically associated with public-sector employment. Private-sector organizations often operate under stronger competitive pressures and may offer less job security, resulting in higher workforce mobility. Previous studies have similarly noted that organizational context and employment conditions influence employee retention patterns within SMEs and other organizational settings [4, 7]. These findings suggest that private-sector SMEs may require stronger retention strategies and more robust quality management systems to counterbalance the challenges associated with competitive labor markets.

Similarly, turnover intention was found to be significantly higher among employees working in manufacturing firms compared with those employed in service organizations. Manufacturing environments are often characterized by physically demanding tasks, operational pressures, production deadlines, and stricter procedural requirements. Such conditions may contribute to increased occupational stress and lower job satisfaction, thereby increasing turnover tendencies. This interpretation is consistent with studies emphasizing the influence of organizational context, working conditions, and managerial practices on employee outcomes and organizational sustainability [2, 22]. The findings suggest that manufacturing SMEs should place particular emphasis on employee well-being, process improvement, and workforce engagement initiatives.

Interestingly, no significant differences were observed in turnover intention across educational levels or work experience categories. This finding indicates that turnover intention may be influenced more strongly by organizational factors than by individual demographic characteristics. In other words, employees with different educational backgrounds and varying levels of experience appear to respond similarly to organizational conditions and management practices. This observation is consistent with contemporary human resource research suggesting that organizational climate, managerial support, and workplace quality often exert stronger effects on employee attitudes than demographic variables alone [1, 28]. Consequently, managers should focus their retention efforts primarily on improving organizational systems and work environments rather than relying solely on demographic segmentation strategies.

Taken together, the findings of the present study provide substantial empirical support for the proposition that quality management systems contribute significantly to employee retention within SMEs. The results reinforce the argument that organizational quality should be understood as a multidimensional construct encompassing leadership, structure, planning, support, employee development, performance management, and continuous improvement. By investing in these dimensions, SMEs can simultaneously enhance operational effectiveness and strengthen workforce stability. The findings also contribute to the broader literature by demonstrating that quality management and human resource outcomes are deeply interconnected and should be examined within an integrated organizational framework. As SMEs continue to navigate increasingly competitive and uncertain business environments, quality management may serve not only as a mechanism for operational excellence but also as a strategic tool for attracting, developing, and retaining valuable human capital [3, 4, 9].

One limitation of this study relates to its cross-sectional design, which restricts the ability to establish causal relationships among the variables. Because data were collected at a single point in time, changes in quality management practices and turnover intention over time could not be examined. In addition, the study relied primarily on self-reported questionnaire data, which may be subject to common method bias and respondent subjectivity. The sample was also limited to SMEs

operating in selected industries, which may affect the generalizability of the findings to other organizational contexts or larger enterprises.

Future research should employ longitudinal research designs to examine how improvements in quality management practices influence turnover intention over extended periods. Researchers may also investigate potential mediating and moderating variables, such as organizational commitment, job satisfaction, employee engagement, psychological empowerment, and organizational culture. Comparative studies across different countries, industries, and organizational sizes would further contribute to understanding the contextual factors that shape the relationship between quality management and employee retention. Qualitative approaches may also provide deeper insights into employees' experiences of quality management practices and their influence on retention decisions.

From a practical perspective, managers of SMEs should view quality management not only as a tool for improving operational performance but also as a strategic mechanism for retaining employees. Organizations should prioritize the development of transparent performance evaluation systems and institutionalize continuous improvement practices throughout all organizational levels. Managers should actively involve employees in quality initiatives, provide meaningful training and development opportunities, and ensure that organizational processes are perceived as fair and supportive. Special attention should be given to addressing financial dissatisfaction and creating career advancement opportunities, as these factors emerged as major drivers of turnover intention. By integrating quality management principles with employee-centered management practices, SMEs can strengthen organizational commitment, reduce turnover risks, and enhance long-term organizational sustainability.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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