Research Article

Correlation of Emotional Quotient and Leadership in Healthcare Leaders: A Cross- sectional Study

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Abstract

Background: Emotional intelligence is a vital attribute of effective healthcare leadership, influencing communication, team performance, and patient care. Emotionally intelligent leaders are better equipped to manage organizational challenges and foster interprofessional collaboration. However, evidence regarding this relationship among healthcare professionals in Pakistan is limited.

Objectives: To assess the correlation between emotional intelligence and leadership skills among healthcare leaders working in public sector hospitals in Lahore, Pakistan.

Methods: A quantitative cross-sectional study was conducted from April to August 2024 among 93 doctors selected through non-consecutive convenience sampling. Participants included postgraduate trainees and higher faculty from ten clinical specialties. Data were collected using a demographic questionnaire, the Trait Emotional Intelligence Questionnaire–Short Form (TEIQue-SF), and the Authentic Leadership Questionnaire (ALQ). Data analysis was performed using SPSS version 27 and JAMOVI. Normality was assessed using the Shapiro–Wilk test, and appropriate parametric and non-parametric tests were applied. Pearson's correlation was used to examine the relationship between emotional intelligence, leadership, and age.

Results: The mean leadership score was 59.9 ± 7.27, and the mean emotional intelligence score was 4.52 ± 0.65. A statistically significant positive correlation was found between emotional intelligence and leadership scores. Both variables showed a positive association with age. Higher faculty demonstrated significantly higher emotional intelligence and leadership scores compared to postgraduate trainees. Leadership scores were significantly influenced by overall work experience, while emotional intelligence was associated with marital status, educational level, and work experience. Gender and specialty showed no significant association with emotional intelligence.

Conclusion: Emotional intelligence is positively correlated with leadership skills among healthcare professionals. Integrating emotional intelligence training into leadership development programs may enhance healthcare leadership and patient care outcomes.

Keywords: Emotional Intelligence, Leadership, Healthcare Professionals, Public Hospitals, Pakistan

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Introduction

Emotional quotient (EQ), also known as emotional intelligence (EI), refers to the ability to recognize, evaluate, and manage one's own emotions as well as those of others and groups, particularly in response to stress and expectations.[1,2] It encompasses competencies such as self-awareness, impulse control, stress and time management, commitment fulfillment, and the ability to inspire others[1]. Leadership is defined as a leader's capacity to influence others through self-awareness, sincerity, effective decision-making, and organizational skills.[3] Leaders with high EQ are adept at evoking emotions, conveying authenticity, and enhancing subordinates, competence, performance, and satisfaction.[4] In healthcare, emotionally intelligent leaders are better able to understand dynamic global challenges, gain patient trust, and deliver optimal patient care through coordinated team and organizational efforts.[5,6]

Multiple international studies have demonstrated a positive association between EI and leadership. Higher EI scores have been reported among healthcare leaders with multiple promotions[7], lower burnout rates among radiology oncology chairs[8], and increased leadership competence with rising EI levels.[9] Leadership training programs have also shown improvements in EI-related

traits among healthcare trainees.[5] Emotional intelligence components such as self-regulation, motivation, empathy, and social skills have been strongly associated with group cohesion and performance.[10] Studies from Pakistan similarly report positive associations between EI, patient satisfaction, and healthcare performance.[11,12] A recent review highlighted that most EQ–leadership research is concentrated in healthcare, higher education, and business sectors globally.[13]

Despite this evidence, research on EQ and leadership among healthcare leaders in Pakistan remains scarce.[14,15] Existing local studies largely focus on undergraduate students or postgraduate trainees, excluding senior faculty responsible for leadership and training.[11] This gap is concerning in light of declining public trust in the healthcare system.

This study aims to generate evidence linking emotional intelligence with leadership and to assess their correlation among healthcare leaders in public hospitals of Lahore.

Methods

A quantitative cross-sectional study was conducted from April,2024 to August 2024 among doctors in public hospital of Lahore. Sample size of 93 was estimated by using 92% confidence interval, 8% margin of error with estimated % of correlation of Emotional Quotient and Leadership as 69.2%.[12] Non-consecutive convenience sampling technique was applied. The respondents were characterized as Post graduate trainees(PGRs) and Higher Faculty which was further defined as Registrar, Senior Registrar, Assistant Professor, Associate professor and Professor in ascending order. Ten specialties were included, namely; Medicine, Surgery, Paediatrics, Gynecology, Anesthesia, Radiology, Ophthalmology, Oncology, Orthopedics and Otolaryngology. All specialties included are clinical and were chosen either for their huge workload or for our ease of sampling.

The data collection tool consisted of two sections; Demographic section: Gender, Age, Marital status, Qualification, Position, Specialty, Name of Hospital, Job tenure in current post and hospital, and overall work experience. Subjective section contained two standardized self-report questionnaires; the Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) for measurement of Emotional Quotient and Authentic Leadership Questionnaire(AQL). Both of these tools have been validated by experts in the field , Cronbach α(TEIQue-SF): >0.8[9] and Cronbach α (AQL): 0.93.[10]

The Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) is a 30item questionnaire which measures Global Trait Emotional Intelligence on 7 point Likert scale. It comprises of domains; Well-being, Self-control, Emotionality, Sociability, Adaptability and Self-motivation. The total score ranged from 1-7, higher the score, higher the EQ of the respondent. The Authentic Leadership Questionnaire(AQL) is a 16 items questionnaire measuring leadership skills on four dimensions; Self Awareness, Internalized Moral Perspective, Balanced processing, and Relational transparency on a 5 point Likert scale. For each domain scores in the upper range of 16–20 indicate stronger leadership and those in the lower range of 15 and below indicate weaker leadership.

Data were analyzed using SPSS version 27 and JAMAOVI. Descriptive statistics for each parameter included percentage, frequency, mean and standard deviation. Normality of data was assessed by Shapiro-Wilk Test and parametric tests were applied to assess relationship of various variables with leadership scores on AQL (Normal Data; Shapiro Wilk test p-value=0.777). Non-parametric tests were used to evaluate the relationship of various variables with Emotional quotient scores on TEIQue-SF (Non-normal data; Shapiro Wilk test p-value=<0.001).

Pearson's Correlation was used to quantitatively determine the relationship between EQ and Leadership scores and with age.

Results

Average AQL score was 59.9±7.27. Average score of TEIQue was in the middle- 4.52±0.653. Pearson Correlation analysis among EQ(measured by TEIQUE) and Leadership(measured by AQL) showed significant positive Correlation among the variables. Both the variables were found to have similar results with Age. Independent sample t-test comparing leadership scores among PGRs and Higher faculty showed difference in the mean scores was statically significant with Higher faculty having higher mean scores in total and across all domains(Figure 2: Table (A)).Difference in mean scores of leadership was not statistically significantly affected by gender and marital status.

One way ANOVA suggested that effect of Overall work experience on leadership was significant for Self-awareness, Internalized moral Perspective domains and also for total Leadership scores($F_{(4,88)}$=3.839,p=0.006), with subjects having 15-20 years' experience having highest mean scores on the whole and in self-awareness, IMP, and Relational Transparency domains(66.00±7.728, 17.50±1.690, 17.88±1.727, 15.63±3.815 respectively) People with more than 20years experience has Highest mean scores only in Balanced Processing domain(16.17±1.472).

Comparison between mean scores of specialties showed Ophthalmology having Highest overall mean scores(65.20±5.554) and in Self-awareness domain(16.70±2.359) and lowest mean scores in Balanced Processing(16.80±1.476), while Medicine has lowest mean scores, Overall(54.27±3.580),also in self-awareness(13.27±2.054) and IMP domains(13.27±2.494). One way ANOVA suggested these differences in Overall

| Table 1: Sociodemographic characteristics of study participants		
Sociodemographic characteristics	**Frequencies**	**Percentiles**
Gender	N=93	
Male	49	52.70%
Female	44	47.30%
Mean Age	33.3±7.22	
Marital status		
Married	63	67.70%
Unmarried	30	32.30%
Specialty		
Medicine	11	11.80%
Surgery	13	14.00%
Paediatrics	12	12.90%
Gynecology	11	11.80%
Oncology	10	10.80%
Ophthalmology	10	10.80%
Otolaryngology(ENT)	9	9.70%
Orthopedics	7	7.50%
Anesthesia	6	6.50%
Radiology	4	4.30%
Post		
PGR	54	58.70%
Higher faculty	38	41.30%
Overall Work experience		
< 5years	39	41.90%

5-10 years	33	35.50%
10-15 years	7	7.50%
15-20 years	8	8.60%
More than 20 years	6	6.50%
Qualification		
Graduation	51	55.40%
Post-graduation	27	29.40%
Multiple Degrees	14	15.20%

mean Leadership scores to be statistically significant $(F_{(9,83)}=2.23, p=0.028)$.

One Way ANOVA to determine effect of Educational level on leadership gave non-significant result except Internalized Moral Perspective(IMP) Domain $(F_{(2,89)}=4.115, p=0.02)$.

Mann-Whitney U test ascertained that there was a statistically significant difference in mean Emotional Quotient scores of PGRs and higher faculty both overall and across Wellbeing, Self-control, Emotionality, sociability domains of Emotional quotient measured by TEIQue with higher faculty scoring higher across all domains(Figure 2: Table (B) with pair wise comparison
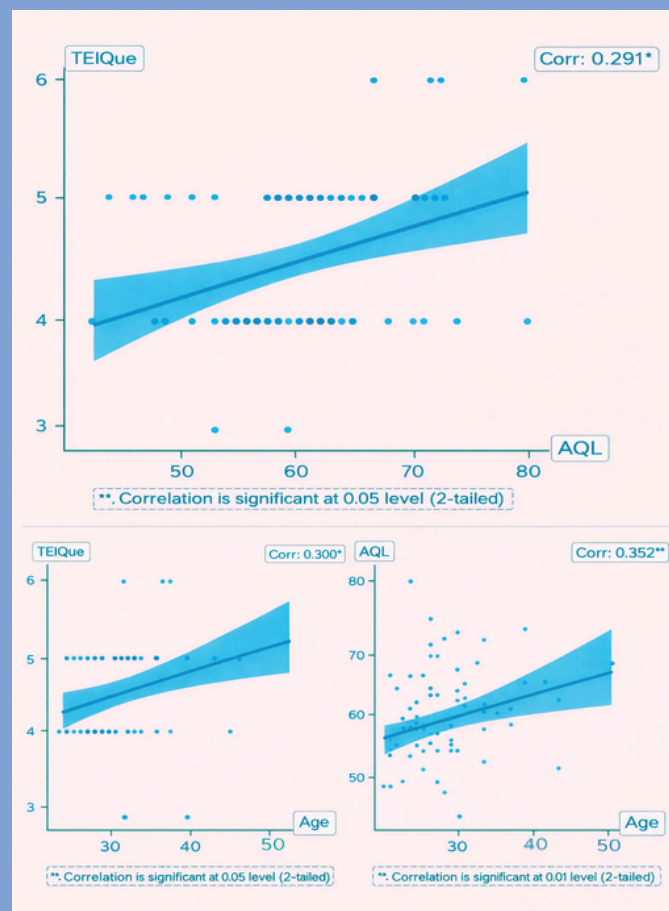
Figure 1: Correlation of EQ and Leadership(Top) Correlation of EQ and Age (Bottom left) Correlation of Leadership and Age (Bottom right)

through Kruskal Wallis test showing only statistically significant difference among PGRs and Assistant professors(p=0.037) and PGRS and Professors(p=0.048).

This test was non-significant for Gender(p=0.643) and but showed differences in mean EQ scores were statistically significant for overall TEIQue(p=0.041) and across well-being(0.016), self-motivation(0.018), emotionality(0.030) domains with respect to marital status with married persons having significantly higher mean EQ scores than unmarried.

Kruskal Wallis test applied to figure out association between Educational level and EQ accepted the alternate hypothesis that there existed statistically significant difference(χ^2(2)=23.510, p=<0.001) between Graduates,

having multiple degrees. Pairwise comparison showed only the difference among graduates and multiple degree holders was the most significant(p=0.008).

Same was the result of Kruskal Wallis test for Overall work experience which suggested statistically significant difference among mean EQ overall and domain scores for different categories of Overall work experience(χ^2(4)=22.925, p=<0.001) with Pairwise comparison showing the most statistically significant difference was among <5years-5-20years(p=0.002).

Another Kruskal-Wallis test to compare Specialties showed there was not statistically significant difference in mean EQ scores between different specialties (χ^2(9)=8.144, p=0.520).

(A) Independent Sample t-test on leadership scores among PGRs and Higher faculty

ALQ	Independent Sample t-test	Groups	Mean ± S.D
Self-Awareness	0.027	PGR	14.9±2.59
		Higher Faculty	16.0±2.27
Internalized Moral Perspective	0.006	PGR	14.6±2.57
		Higher Faculty	16.1±2.24
Balanced processing	0.985	PGR	14.9±2.49
		Higher Faculty	14.8±2.38
Relational Transparency	0.950	PGR	14.4±2.52
		Higher Faculty	14.3±2.92
Total	0.083	PGR	58.6±7.49
		Higher Faculty	61.2±6.16

(B) Mann- Whitney U-test on TEIQue for PGRs and Higher faculty

TEIQue	Mann-Whitney U-test (P-value)	Groups	Mean±S.D
Wellbeing	0.015	PGR	4.87±0.754
		Higher Faculty	5.26±0.828
Self-Control	0.042	PGR	4.17±0.818
		Higher Faculty	4.50±0.830
Emotionality	0.003	PGR	4.31±0.773
		Higher Faculty	4.84±0.718
Sociability	0.001	PGR	4.00±0.777
		Higher Faculty	4.55±0.686
Adaptability	0.102	PGR	4.81±1.029
		Higher Faculty	5.21±1.189
Self-Motivation	0.132	PGR	5.28±1.220
		Higher Faculty	5.66±1.236
Total	<0.001	PGR	4.30±0.537
		Higher Faculty	4.79±0.664

Abbreviations
EQ: Emotional Quotient
EI: Emotional Intelligence
AQL: Authentic Leadership Questionnaire
TEIQue-SF: Trait Emotional Intelligence Questionnaire- Short Form

Figure 1: Comparison of EQ and Leadership scores among PGRs and Higher Faculty

Discussion

Our study focused on the association between emotional intelligence and leadership skills among healthcare leaders. A statistically significant relationship was observed between the two variables (both independent). Gender was found to have no effect on either variable; however, age, overall work experience, educational level, and level of leadership showed statistically significant effects on both variables. Among specialties, Medicine scored the lowest for both variables, while Surgery scored the lowest in emotional intelligence and Gynecology scored in the lower range for leadership. This finding is alarming given the hectic, busy, and demanding nature of these specialties.

There is sufficient scientific evidence suggesting a positive correlation between emotional intelligence and leadership, either directly or indirectly, across various professional domains and different categories of healthcare workers, including nurses and pharmacists. [18-21]

Similar to our research, Farmer (2020) emphasized the significance of emotional intelligence among healthcare professionals, particularly in leadership and patient care. Both studies highlight the importance of recognizing and managing emotions in high-stress environments. However, while our study focused on the relationship between emotional intelligence and leadership competencies, with higher faculty members scoring better, Farmer (2020) focused on doctors' emotional well-being and the need for institutional support, emphasizing the recognition and management of emotional responses to traumatic situations.

Waheed (2020) focused on the impact of emotional intelligence on patient satisfaction in a healthcare setting, whereas our study examined the impact of emotional intelligence on leadership qualities of healthcare workers. Both studies demonstrate the significance of emotional intelligence in healthcare. Our findings indicate that emotional intelligence is related to leadership scores, which may indirectly influence patient satisfaction, while Waheed (2020) provided direct evidence of emotional intelligence's impact on patient satisfaction ($r = 0.655$, $p < 0.001$).

Biswas (2022) explored the relationship between emotional intelligence and group cohesion and found significant positive correlations between emotional intelligence dimensions and group cohesion ($r = 0.57$ to 0.70, $p < 0.001$). Consistent with our findings, emotional intelligence was significantly and positively associated with leadership scores, suggesting a potential link between emotional intelligence and group cohesion. Future research may further investigate this relationship.

Weiszbrod (2020) examined the relationship between emotional intelligence and leadership competencies and found a significant positive correlation, consistent with our study. Both studies controlled for demographic variables such as gender, years of experience, and educational level. Our study was conducted in a medical setting, whereas this research[4] included healthcare leaders from long-term care, hospital, and ambulatory care settings. That study had a higher proportion of female participants and a more balanced educational distribution, while our study included a higher proportion of male participants and a greater number of graduate degree holders, possibly due to differences in sampling techniques.

The findings also highlight the importance of contextual factors influencing emotional intelligence and leadership. Our study demonstrated that faculty position, work experience, and specialty significantly impacted leadership scores, while Waheed (2020) emphasized patient interaction. Biswas (2022) highlighted the role of group dynamics, and Ahsan (2023) recommended integrating leadership and emotional intelligence to improve job performance among doctors in Pakistan's private healthcare sector.

In conclusion, this study demonstrated a significant positive correlation between emotional intelligence and leadership among healthcare leaders. While gender had no effect, age, work experience, education, and leadership level significantly influenced both variables. Specialty-based differences highlight areas requiring targeted development, particularly in high-pressure fields. These findings align with and extend existing literature, reinforcing the importance of emotional intelligence in leadership development.

This study has several strengths. Although considerable evidence exists, most prior studies focused on a single variable or a specific specialty. [23-25] In contrast, this study adopted a multidimensional approach, examining the relationship between emotional intelligence and leadership across multiple specialties among Pakistani healthcare leaders. It provides valuable regional insights and establishes a foundation for data-driven leadership development and future research in Pakistan's healthcare sector.

Still, there are various limitations of our study due to lack of time and resources. The study's self-assessment approach and sampling strategy may impact the validity and generalizability of the results. Self-reporting biases and social desirability factors may influence the data. The sample is restricted to specific hospital, specialties, and job titles.

A few recommendations are advised to develop emotional intelligence in public healthcare leaders. Since leaders cannot completely separate their emotions from their work, ineffective emotional management may affect their performance. Future research should continue to explore the complex relationships between EI, leadership, and contextual factors to provide a more comprehensive understanding of these dynamics. A customized emotional intelligence development program for leaders would be

beneficial, helping improve their self-awareness ,emotional management and social skills. However, these recommendations require the government's commitment to address sector-specific challenges and investing in EI development programs to enhance service delivery.

To increase the reliability and generalizability of findings, future studies should strive for a larger sample size, more robust sampling strategy and be conducted across diverse regions of Pakistan, providing a comprehensive national perspective.

Conclusion

The study found a significant positive correlation between emotional intelligence and leadership among healthcare leaders. Higher age, work experience, and professional seniority were associated with better outcomes, while gender showed no effect. Specialty-based differences highlight the need for targeted emotional intelligence–focused leadership development programs.

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