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Investigating the Relationship Between Social Intelligence and Time Management Among Prehospital Emergency Technicians in Markazi Province, Iran

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Original Article

Abstract

INTRODUCTION: Prehospital emergency personnel face numerous challenges when time is poorly managed, which can adversely affect both patient outcomes and the overall healthcare system. Identifying factors that contribute to effective time management is essential for enhancing performance in emergency care settings. This study aimed to examine the relationship between social intelligence and time management among prehospital emergency staff in Markazi province, Iran.

METHODS: This cross-sectional study was conducted in 2024 among 200 emergency medical technicians working in urban and road EMS bases in Markazi province using convenience sampling. Data were collected using a demographic questionnaire, the Time Management questionnaire, and the Social Intelligence questionnaire. Data analysis was performed in SPSS-16 using descriptive statistics and Pearson correlation tests, with the level of statistical significance set at $p<0.05$.

FINDINGS: The results indicated that the participants had a mean age of 33.64 ± 7.39 years, with males comprising 95% of the sample. The majority of participants (89.6%) exhibited strong time management skills. The mean social intelligence score was 93.15 ± 14.45, reflecting a high level of social intelligence. Furthermore, social intelligence and all of its subscales showed positive and statistically significant correlations with all dimensions of time management ($p<0.001$).

CONCLUSION: Social intelligence, as a critical component of human capital, significantly influences the time management abilities of prehospital emergency personnel. Interventions aimed at enhancing social intelligence may therefore improve time management skills and overall efficiency in prehospital emergency care.

Keywords: Time management; Prehospital emergency care; Social intelligence; Emergency medical technicians.

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Introduction

Prehospital emergency care represents the first and most critical link in the healthcare chain during emergencies and plays a pivotal role in improving patient outcomes (1). Evidence indicates that the quality of care provided at this stage directly influences mortality rates and the incidence of complications arising from accidents and other emergency conditions (2). In this fast-paced and unpredictable environment, emergency personnel must make rapid decisions under intense time pressure, manage complex clinical situations, and respond to the needs and expectations of patients and their families (3).

In such high-stress contexts, social intelligence—the ability to perceive, understand, and respond appropriately to social cues—has a critical role (4). Social intelligence encompasses skills such as emotional awareness, empathy, social self-awareness, and effective interpersonal

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relationship management (3). Personnel with higher social intelligence are more likely to establish effective communication with patients, companions, and other healthcare team members and demonstrate professional behavior under stressful conditions (7,8).

Time management is equally essential for optimal performance in prehospital emergency settings. Given the time-sensitive nature of emergency care, the ability to prioritize tasks, allocate resources efficiently, and perform interventions promptly is crucial for saving lives (5). Inefficient time management can compromise care quality and increase both medical errors and occupational stress among personnel (6).

Despite the recognized importance of social intelligence and time management, few studies have examined the relationship between these two constructs in prehospital emergency care. Previous research by Joseph et al. (2010) reported a positive association between social intelligence dimensions and time management skills, although their analysis was limited to correlations and did not account for potential confounding variables (7). Similarly, Hassan Helaly et al. (2022) explored this relationship among nurses, which may limit the applicability of their findings to the highly dynamic and time-sensitive prehospital emergency environment (8).

Addressing these gaps, the present study aimed to investigate the relationship between social intelligence and time management among prehospital emergency technicians in Markazi province, Iran. The findings of this research may provide valuable evidence for the development of targeted educational and training programs aimed at enhancing the professional competencies of emergency personnel.

Methods

This cross-sectional study was conducted in the Emergency Medical Service (EMS) bases affiliated with Arak University of Medical Sciences between October 2024 and March 2025. The study population included emergency medical technicians working in urban and road EMS bases. Inclusion criteria were at least six months of work experience in prehospital emergency services, while questionnaires with more than 30% unanswered items were excluded. Participants were selected using convenience sampling. The sample size was calculated considering a 95% confidence level, 80% statistical power, and assuming a minimum correlation coefficient of 0.2 between social intelligence and time management (9,10). Based on Fisher's Z transformation, 200 participants were estimated for the correlation analysis.

Data were collected using three structured questionnaires:

A) *Demographic Information Questionnaire:* This instrument collected demographic and occupational characteristics, including age, gender, educational level, marital status, number of children, employment status, having a second job, type of service base (urban or road), and the number of monthly shifts.

B) *Time Management Questionnaire by Hashemizadeh (2006):* Time management was assessed using a 20-item Likert-type questionnaire with four dimensions such as goal setting and prioritization (items 1–5), time management mechanics (items 6–10), perceived control over time (items 11–15), and organization and planning (items 16–20). Each item was scored on a 5-point scale, with total scores ranging from 20 to 100. Scores of 20–40 indicate poor, 41–60 moderate, and above 60 strong time management skills (11)

C) *Standardized Social Intelligence Questionnaire by Silvera et al. (2001*): This 21-item instrument measures social intelligence across three subscales: social information processing, social skills, and social awareness. Participants rated each item on a five-point Likert scale, with some items reverse-scored. Higher total scores indicate higher social intelligence (12).

Validity and Reliability

Content validity was evaluated by a panel of 12 experts, including nine faculty members with doctoral degrees in nursing and three biostatistics specialists. The Content Validity Ratio (CVR) and Content Validity Index (CVI) were calculated to assess the necessity and relevance of items. CVR values were 0.83 for the Time Management Questionnaire and 0.85 for the Social Intelligence Questionnaire, while CVI values were 0.86 and 0.87, respectively.

Reliability was assessed via internal consistency using Cronbach's alpha in a pilot group of 20 comparable participants who were excluded from the main study. Cronbach's alpha coefficients were 0.88 for the Time Management Questionnaire and 0.86 for the Social Intelligence Questionnaire, indicating acceptable to high reliability.

Ethical approval was obtained from the Ethics Committee of Tehran University of Medical Sciences (Ethical Approval Code: IR.TUMS.FNM.REC.1403.065). Written informed consent was obtained from all participants, and data collection was carried out within 1–3 days at each EMS base.

Data were analyzed using SPSS-16 after confirming normal distribution. Descriptive statistics (mean, standard deviation, frequency) were used to summarize demographic and study variables. Pearson correlation coefficient was employed to examine the relationship between social intelligence and time management. A p-value of less than 0.05 was considered statistically significant.

Findings

The mean age of the research personnel was 33.64 ± 7.35 years, the majority (95%) were male, 42.8% were married, and 61.2% had a bachelor's degree. Among the participants, 48% were formally employed, and 8% had a second job, of which 53.7% had a second job unrelated to healthcare. The highest number of pre-hospital emergency personnel (62.7%) were from urban bases, and the mean number of shifts among the research personnel was 24.41. Social intelligence had a significant statistical relationship with age (p=0.02) and Time management had a significant statistical relationship with employment status (p=0.04). Time management in personnel with contractual employment was significantly higher than others (p=0.03). Time management also had a significant statistical relationship with having a second job, such that time management in personnel who did not have a second job was significantly higher than personnel with a second job (p=0.01) (Table 1).

As Table 2 shows, time management was at a strong level in most of the research personnel, i.e., 89.6%, and none had time management at a weak level. The mean score of social intelligence among the research personnel was obtained as 92.15 ± 14.45. Also, it is observed that the highest social intelligence score was in the social awareness subscale with a mean of 32.55 ± 5.52 and the lowest score was in the social skills subscale with a mean of 29.29 ± 5.37 (Table 3).

Table 1. Relationship of demographic characteristics with social intelligence and time management in pre-hospital emergency personnel

Individual & Occupational Characteristics		Frequency	Percent	Social Intelligence	Time Management
Gender	Male	191	95	Independent t-testt=1.019df=163P=0.342	Independent t-test t=1.016 df=199P=0.311
	Female	10	10		
Marital status	Single	72	35.8	Independent t-test t=1.143 df=199 P=2.54	Independent t-test t=1.143 df=199 P=0.254
	Married	129	64.2		
Highest education level	Associate degree	65	32.3	ANOVA F=0.530 P=0.03	ANOVAF=.0530 P=0.589
	Bachelore degree	123	61.2		
	Master's degree and above	13	6.5		
Number of children	0	33	25.6	ANOVAF=1.970 P=0.232	ANOVAF=1.780 P=0.154
	1	38	29.5		
	2	41	31.8		
	3 and above	17	13.2		
Employment status	Official recruitment	90	44.8	ANOVAF=2.754 P=0.49	ANOVAF=2.771 P=0.43
	Corporate	59	29.4		
	Contract employment	27	13.4		
	Compulsory service program	25	12.4		
Second job	Yes	82	40.8	Independent t-test t=1.601 df=176 P=0.32	Independent t-test t=2.402 df=199 P=0.017
	No	119	59.2		
Base type	Urban	126	62.7	Independent t-test t=1.217 df=156 P=0.312	Independent t-test t=1.137 df=199 P=0.257
	Road	75	37.3		
Age (yaer) (mean ±SD)		33.64±7.39		Pearson correlation r=0.075 P=0.02	Pearson correlation r=0.050 P=0.482
Number of shifts(mean ±SD)		66.11 ±2.49		Pearson correlation r=-0.075 P=0.154	Pearson correlation r=-0.095 P=0.182

Table 2. Frequency distribution, mean, and standard deviation of time management in prehospital emergency staff

Time Management	Percent	Frequency
Weak (40-20)	0	0
Medium(60-40)	10.4	21
Strong(above 60)	89.6	180
Total	100	201
Mean± Standard deviation	59.91±75.9	
Maximum-Minimum	49-100	

Table 3. Mean and standard deviation of social intelligence and its subscales in pre-hospital emergency personnel

Social intelligence subscales	Mean	Standard deviation	Maximum	Minimum
Social Information Processing (7-49)	31.31	5.69	46	11
Social Awareness (7-49)	32.55	5.52	47	14
Social Skills (7-49)	29.29	5.37	46	13
Social Intelligence (21-147)	93.15	14.45	130	38

Table 4. Correlation of time management and its dimensions with social intelligence and its subscales in pre-hospital emergency personnel

Social intelligence subscales	Time management dimensions				
	Setting goals & prioritizing	Time management mechanics	Control over time	Establishing order & organization	Time management
Social information processing	r=0.357 P< 0.001	r=0.286 P< 0.001	r=0.238 P< 0.001	r=0.32 P<0.001	r=0.377 P< 0.001
Social awareness	r=0.520 P< 0.001	r=0.523 P< 0.001	r=0.462 P< 0.001	r=0.503 P<0.001	r=0.628 P< 0.001
Social skills	r=0.311 P< 0.001	r=0.255 P< 0.001	r=0.322 P< 0.001	r=0.353 P<0.001	r=0.388 P< 0.001
Social intelligence	r=0.455 P< 0.001	r=0.407 P< 0.001	r=0.390 P< 0.001	r=0.455P< 0.001	r=0.533P< 0.001

Data analysis showed that time management and all its dimensions had a statistically significant positive correlation with social intelligence and its subscales (p<0.001). In other words, with the increase in social intelligence and its subscales, time management also increases (Table 4).

Discussion and Conclusion

The present study aimed to investigate the relationship between social intelligence and time management among prehospital emergency technicians in Markazi province, Iran. The findings demonstrated a positive and statistically significant relationship between social intelligence and time management, indicating that personnel with higher levels of social intelligence tend to exhibit more effective time management skills. This finding highlights the importance of interpersonal and social competencies in high-pressure prehospital emergency settings.

The results also indicated that certain demographic variables, including age, employment status, and educational level, were significantly associated with social intelligence and time management. This finding is consistent with the study conducted by Venter et al. (2006) which reported that sociodemographic characteristics influence individuals' perceptions of time and time management behaviors (13). Similarly, Kang et al. (2012) found that greater work experience was associated with improved time management skills, likely due to increased familiarity with task prioritization and workload management in clinical environments (14).

In contrast, Uhm et al. (2019) reported no significant association between age and time management among emergency medical technicians in South Korea (15). These inconsistencies may be attributed to differences in organizational structures, educational systems, and professional development programs across countries.

In the present study, the mean social intelligence score among prehospital emergency technicians was at a desirable level. This finding is consistent with the results reported by Özdemir et al. (2021) who observed high levels of social intelligence among healthcare professionals in Turkey (16).

Similarly, Johnston et al. (2025) reported elevated social intelligence levels among emergency and fire management leaders in the United States (17). However, Bai et al. (2024) reported lower levels of social intelligence among nursing students in China (18). Such variations may reflect cultural differences, communication training approaches, and the emphasis placed on social and interpersonal skills within educational curricula.

Regarding time management, the findings of the present study indicated that most participants demonstrated strong time management skills. This result aligns with studies conducted in Australia and Canada, which reported satisfactory levels of time management among emergency and healthcare personnel (19,20). In contrast, Aliyu et al. (2015) reported lower levels of time management efficiency among emergency responders in South Africa, which may be related to higher workloads, limited resources, and organizational constraints (21).

The significant positive relationship observed between social intelligence and time management in this study is consistent with previous research.

Masud et al. (2015) reported a significant association between emotional intelligence, time management, and job-related outcomes among organizational employees (22)

Lievens and Chan (2017) also emphasized the close relationship between social intelligence and key professional competencies, including effective time management (23). Furthermore, Zautra et al. (2015) demonstrated that training programs aimed at enhancing social intelligence can lead to improvements in soft skills, including communication and self-regulation abilities (24). These findings suggest that social intelligence facilitates better understanding of complex social situations, effective communication, and conflict management, which collectively contribute to improved time management.

The findings of this study indicate that social intelligence and time management are closely related and influential factors in the performance of prehospital emergency personnel. Given the positive and significant relationship between these variables, enhancing social intelligence may contribute to improved time management and, consequently, higher quality prehospital emergency services.

This study had several limitations. The cross-sectional design limits the ability to infer causal relationships between variables. Additionally, the restriction of the study sample to prehospital emergency technicians in Markazi province limits the generalizability of the findings. Future longitudinal and interventional studies are recommended to further examine causal pathways and evaluate the effectiveness of targeted educational interventions.

Despite these limitations, this study is among the first in Iran to specifically examine the relationship between social intelligence and time management among prehospital emergency technicians. The use of validated instruments and the simultaneous examination of demographic and occupational variables strengthen the credibility of the findings.

Based on the results, it is recommended that health system managers and policymakers design and implement integrated training programs focusing on both social intelligence and time management skills. Incorporating simulation-based training, revising educational curricula, establishing mentorship programs, and promoting supportive work environments may enhance professional competencies. Additionally, leveraging digital educational tools and time management monitoring systems could further support continuous professional development. Systematic implementation of these strategies may lead to improved performance of prehospital emergency personnel and enhanced quality of emergency care services.

Compliance with Ethical Guidelines

The present study was derived from a Master's thesis in Emergency Nursing and was approved by the Ethics Committee of Tehran University of Medical Sciences (Ethical Approval Code: IR.TUMS.FNM.REC.1403.065)

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Author's Contributions

Ali Eisaabadi contributed to the study design and data analysis; Maryam Esmaili was involved in the study design and data collection; Shima Haghani contributed to data analysis and final approval; and Mahboubeh Shali contributed to the study design, drafting of the original manuscript, and final approval of the manuscript and served as the corresponding author.

Conflict of Interests

The authors declare no conflict of interest.

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References

1. Heymann EP, Lim R, Maskalyk J, Pulfrey S, Chun S, Osei-Ampofo M, Desouza K, Landes M, Lang E. Emergency medicine: a global perspective on its past, evolution, and future. Internal and Emergency Medicine. 2024:1-5.https://doi.org/10.1007/s11739-024-03812-3
2. Quake SY, Khoda F, Arjomandi Rad A, Subbiah Ponniah H, Vardanyan R, Frisoni P, Arjomandi Rad

H, Brasesco M, Mustoe S, Godfrey J, Miller G. The current status and challenges of prehospital trauma care in low-and middle-income countries: a systematic review. Prehospital emergency care. 2024;28(1):76-86 https://doi.org/10.1080/10903127.2023.2165744

3. Rogo EJ, Hodges KO, Evans JL. The Social Intelligence Self-care Conceptual Model. Journal of Dental Hygiene. 2023 Aug 1;97(4).
4. Rahim MA, Gupta SK, Thatikonda P. A Structural Equations Model of Nursing Staff's Social Intelligence and Quality of Patient Care: A Study in a Large Indian Hospital. Applied Management Journal. 2021;22.
5. Jin J, Yu J, Wang J. Impact of improved prehospital emergency medical service system on the time management of chest pain patients in the emergency department. American Journal of Translational Research. 2021;13(7):7743.
6. Bardhan R, Byrd T. Psychosocial work stress and occupational stressors in emergency medical services. In Healthcare 2023;11(7): 976. https://doi.org/10.3390/healthcare11070976
7. Joseph C, Lakshmi SS. Social Intelligence, a Key to Success. IUP Journal of Soft Skills. 2010;4(3).
8. Hassan Helaly S, Alenezi A, Elsaid Elsabahy H, Saleh Moustafa Saleh M. Effects of head nurses' leadership behaviors and social intelligence on staff nurses' job involvement. Egyptian Journal of Health Care. 2022;13(4):1308-22. https://doi.org/10.21608/ejhc.2022.269545
9. Giulia V, Giulia S, Paola F. Emotional intelligence, empathy and alexithymia: a cross-sectional survey on emotional competence in a group of nursing students. Acta Bio Medica: Atenei Parmensis. 2019;90(Suppl 4):32.
10. Hajloo N, Eyvazi K. The effectiveness of emotional intelligence training on student's time management. Journal of Psychological Studies. 2015;11(3):79-98.
11. Caponnetto P, Platania S, Maglia M, Morando M, Gruttadauria SV, Auditore R, Ledda C, Rapisarda V, Santisi G. Health occupation and job satisfaction: the impact of psychological capital in the management of clinical psychological stressors of healthcare workers in the COVID-19 era. International journal of environmental research and public health. 2022; 19(10):6134.https://doi.org/10.3390/ijerph19106134
12. Silvera DH, Martinussen M, Dahl TI. The Tromsø Social Intelligence Scale, a self-report measure of social intelligence. Scand J Psychol. 2001;42(4):313-319. https://doi.org/10.1111/1467-9450.00242
13. Venter F. The cultural differences in time and time management: A socio-demographic approach. Acta commercii. 2006;6(1):39-49. https://doi.org/10.4102/ac.v6i1.89
14. Kang CM, Chiu HT, HU YC, Chen HL, Lee PH, Chang WY. Comparisons of self-ratings on managerial competencies, research capability, time management, executive power, workload and work stress among nurse administrators. Journal of nursing management. 2012 Oct;20(7):938-47. https://doi.org/10.1111/j.1365-2834.2012.01383.x
15. Uhm D, Jung G, Yun Y, Lee Y, Lim C. Factors affecting the disaster response competency of emergency medical technicians in South Korea. Asian nursing research. 2019;13(4):264-9. https://doi.org/10.1016/j.anr.2019.09.005
16. Özdemir N, Adıgüzel V. The relationship between social intelligence, self-esteem and resilience in healthcare professionals and the affecting factors. Psikiyatri Hemşireliği Dergisi. 2021. https://doi.org/10.14744/phd.2020.96658
17. Johnston II JH. Leadership and Social Intelligence: An Investigative Study of Chief Fire and Emergency Management Officers in Nevada (Doctoral dissertation, Oklahoma State University). 2025.
18. Bai Q, Cui Z, Hou R, Wang J. The mediating effect of social intelligence in the association between social anxiety and mental health among Chinese nursing students. Scientific Reports. 2024; 14(1): 27208. https://doi.org/10.1038/s41598-024-78637-3
19. Sharma N, Middlebrook N. Keeping up with the best: A review of emergency relief delivery practices in Australia.2023 https://doi.org/10.14264/fbc84b8
20. Nowrouzi-Kia B, Nixon J, Ritchie SD, Wenghofer EF, VanderBurgh D, Sherman JE. Examining the quality of work-life of paramedics in northern Ontario, Canada: A cross-sectional study. Work. 2022;72(1):135-47https://doi.org/10.3233/WOR-205025
21. Aliyu A. Management of disasters and complex emergencies in Africa: The challenges and constraints. Annals of African Medicine. 2015; 14 (3):123-31. https://doi.org/10.4103/1596-3519.149894
22. Masoud G, Najafzadeh M. The relationship between emotional intelligence, time management and job burnout of employees in the youth and sports departments of West-Azerbaijan. Indian J Fundam Appl Life Sci. 2015;5(S1):2675-2680.
23. Lievens F, Chan D. Practical intelligence, emotional intelligence, and social intelligence. Handbook of employee selection. 2017:342-64. https://doi.org/10.4324/9781315690193-15
24. Zautra EK, Zautra AJ, Gallardo CE, Velasco L. Can we learn to treat one another better? A test of a social intelligence curriculum. PloS one. 2015;10(6):e0128638. https://doi.org/10.1371/journal.pone.0128638