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Emotional intelligence of health personnel and safety climate in hospitals during the COVID-19 pandemic

Inteligência emocional de trabalhadores de saúde e clima de segurança em hospitais na pandemia COVID-19

Inteligencia emocional del personal de salud y clima de seguridad en hospitales en la pandemia COVID-19

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ABSTRACT

Objective: To analyze the relationship between the emotional intelligence of healthcare workers in a hospital environment and their perception of the safety climate in the COVID-19 pandemic.

Method: Cross-sectional, analytical study, carried out with 81 health workers who worked in hospitals during the pandemic, between September and November 2021. Data collection was carried out using an electronic form, which included a sociodemographic/occupational questionnaire and the Brazilian versions of the Safety Attitudes Questionnaire and the Schutte Self Test. Spearman's correlation test and simple and multiple linear regression analyses were applied.

Results: An increase of 1 point in emotional intelligence levels resulted in an increase of 0.487 points in the perception of the safety climate. The most significant predictor of this perception was the ability to manage other people's emotions (β=0.334; p=0.003; R2=0.168).

Conclusion: A higher level of emotional intelligence in hospital healthcare workers was related to a greater perception of the safety climate during the COVID-19 pandemic.

Descriptors: COVID-19. Emotional intelligence. Patient safety. Health personnel. Hospitals. Organizational culture.

RESUMO

Objetivo: Analisar a relação entre inteligência emocional de trabalhadores de saúde em ambiente hospitalar e a percepção do clima de segurança na pandemia COVID-19.

Método: Estudo transversal, analítico, realizado com 81 trabalhadores de saúde que atuaram em hospitais na pandemia, entre setembro-novembro de 2021. A coleta de dados foi realizada com formulário eletrônico reunindo questionário sociodemográfico/ocupacional e versões brasileiras do *Safety Attitudes Questionnaire* e *Schutte Self Test*. Aplicou-se teste de correlação de *Spearman* e análise de regressão linear simples/múltipla.

Resultados: O aumento de 1 ponto nos níveis de inteligência emocional repercutiu no aumento de 0,487 pontos nos níveis de percepção do clima de segurança. O preditor mais significativo dessa percepção foi a habilidade de manejo das emoções de outros (β=0,334; p=0,003; R2=0,168).

Conclusão: Um maior nível de inteligência emocional de trabalhadores de saúde em ambiente hospitalar tem relação com uma maior percepção do clima de segurança na pandemia COVID-19.

Descritores: COVID-19. Inteligência emocional. Segurança do paciente. Pessoal de saúde. Hospitals. Cultura organizacional.

RESUMEN

Objetivo: Analizar la relación entre la inteligencia emocional de los trabajadores de la salud en un ambiente hospitalario y la percepción del clima de seguridad en la pandemia de COVID-19.

Método: Estudio transversal, analítico, realizado con 81 trabajadores de la salud que actuaron en hospitales durante la pandemia, entre septiembre y noviembre de 2021. La recolección de datos se realizó mediante formulario electrónico que incluyó un cuestionario sociodemográfico/ocupacional y versiones brasileñas del *Safety Attitudes Questionnaire* y del *Schutte Self Reported Test*. Se aplicó la prueba de correlación de *Spearman* y analices de regresión lineal simple y múltiple.

Resultados: Un aumento de 1 punto en los niveles de inteligencia emocional resultó en un aumento de 0,487 puntos en los niveles de percepción del clima de seguridad. El predictor más significativo de esta percepción fue la capacidad de gestionar las emociones de los demás (β=0,334; p=0,003; R2=0,168).

Conclusión: Un mayor nivel de inteligencia emocional en trabajadores de la salud en un ambiente hospitalario se relaciona con una mayor percepción del clima de seguridad en la pandemia de COVID-19.

Descriptores: COVID-19. Inteligencia emocional. Seguridad del paciente. Personal de salud. Hospitales. Cultura organizacional.

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INTRODUCTION

COVID-19 is an acute respiratory infection caused by the coronavirus SARS-CoV-2, which is potentially severe and highly transmissible. On March 11, 2020, the World Health Organization (WHO) declared the COVID-19 outbreak as a global pandemic, which had a significant chance to lead to high morbidity and mortality rates[1].

From then on, Brazil has gone through recurring infection rates caused by the emergence of new COVID-19 variants. One of the most concerning strains of the disease became known as Omicron (B.1.1.529). It led to a fast spread of the disease throughout the world, since it has a high capacity for transmission and reinfection, which means it can be up to 10 times more infectious than the original COVID-19 variant, and twice as much as the Delta variant[2].

A recent ecological study of confirmed COVID-19 cases and deaths, including data from 185 countries, showed that COVID-19 presented a mean death rate of 291/thousand people. COVID-19 morbidity and mortality were correlated with previous chronic conditions, population aging, and the low capacity of health services to test and offer hospital beds. This condition was worsened in countries or regions with high social inequality. This situation shows an interaction between COVID-19 and several contextual aspects (social, epidemiological, and related to the health system)[3].

Considering the issues faced in the scope of health systems, a highly skilled workforce became a priority during the pandemic. However, the need for health services to prepare for emergency situations meant the health system and its professionals became overloaded, increasing the number of workers on leave, with diseases, or dead, in addition to those with intense psychological distress, expressed through anxiety disorders, sleep disorders, and the fear of becoming ill and contaminating colleagues and relatives[4–7].

As a result, there is a growing demand for studies about the consequences of the COVID-19 pandemic for the health of front line workers, especially those who worked in large urban centers and hospitals[6–9]. Simultaneously, concerns were raised about the quality of the service these professionals could provide, as they were frightened and ill and did not receive all organizational and emotional support they deserved, in order to provide safe care[6–7].

Regarding the emotional aspect, a literature review highlighted emotional intelligence (EI) and its competences as a determining factor to mitigate stress in daily life, highlighting the need for awareness, self-control, and empathy to face crises such as the COVID-19. In a situation as difficult and demanding as the COVID-19 pandemic, basic EI components were especially important for people to control difficult situations, such as the ones they were then dealing with. Furthermore, this study showed that people with high EI can manage and mitigate stress better, by adopting strategies of resilience and control. Thus, the authors recommended that EI should be integrated in the curricula of all levels of care and, later, in the workplace itself[10].

There is positive evidence that EI is a strategy that can deal with situations of overload and psychological stress. This is the ability to perceive, evaluate, express, and control emotions in order to promote growth, going beyond the intellectual aspect; it also includes the ability to perceive and/or inspire feelings when they make it easier to think[11].

Although researchers, professionals, and the population as a whole understand that the level of emotional exhaustion experienced by people around the world was considerably high during the pandemic, the way in which organizations conducted this emotional exhaustion and evaluated the performance of workers in this regard is still a gap in the scientific knowledge about the subject. Although different studies on the socioemotional and mental health of workers during the pandemic[6–8], these emphasized the manifestations and causes of disease and death, not the EI abilities as necessary resources to deal with stressful situations.

Research has shown that EI and transformational leadership are essential to deal with the dysfunctional consequences of emotional exhaustion in work environments, since they influence citizenship-related behavior. Furthermore, new insights delved deeper into the importance of EI to deal with the loss of resources due to emotional exhaustion, which happened very often in the pandemic. Thus, individuals should invest in the development of skills in EI[12].

Another study suggested that improving EI abilities is essential to aid nurses during pandemic outbreaks, since it increases individual and social resilience, in addition to improving their life and professional results. Other authors suggest that EI should be integrated to clinical practice and decision making[13].

Although other studies prove that aspects such as patient satisfaction and positive clinical results were correlated to the EI of health professionals and a patient safety culture[14], the actual impact of EI on these professionals in the setting of the COVID-19 pandemic is yet to be determined, owing to the fact this is an unprecedented situation in contemporary history, which demanded a new and rigorous work process

with high emotional and physical overload. So far, it has not been possible to determine how this construct impacted the safety climate from the perspective of Brazilian health workers.

Therefore, the hypothesis of this study is that the EI is directly associated with the construct "safety climate", where personal and environmental aspects are intimately tied. From the point of view of professionals, the factors evaluated regarding safety climate are: safety awareness, including work according to regulations; correct safety attitudes; safety conscience; and appropriate psychological perception[15].

A recent study pointed at six new trends and perspectives of research into safety climate, including: the relationship between the feeling of safety and reality based on the safety climate; elimination of cognitive biases in risk perception; safety climate research from a psychological perspective; quantitative development of the safety climate; multidimensional structure of the safety climate; and the mechanism showing how the safety climate influences safety behavior[15]. This study is an attempt to investigate one of these perspectives: the safety climate from a psychological perspective.

Considering the above, the following research question was created: What is the relationship between the emotional intelligence skills of health workers and their perception of the safety climate in Brazilian hospitals during the COVID-19 pandemic?

Our goal was, therefore, to analyze whether there was a relationship between the emotional intelligence of hospital health workers and their perception of the safety climate in the COVID-19 pandemic.

METHOD

Cross-sectional, analytical study with Brazilian health professionals who worked in hospitals during the COVID-19 pandemic. As an inclusion criterion, we considered those who had at least six months experience in hospital care with COVID-19 patients, regardless of ward.

This research was carried out with health workers from the state of Ceará, Brazil. The sample was selected as convenient, since, during the pandemic, it was not possible to precisely identify the number of health workers in Ceará who were working in the frontlines of COVID-19 in hospitals. This can be explained by the increased number of temporary work contracts, personnel turnover, professionals on leave due to illness, and other factors[8–9].

The research was carried out from September to November 2021, using data collection instruments (Google Forms®) shared in social networks (WhatsApp®, Facebook®, and Instagram®). The link was posted to the Instagram® page of the Teaching, Research and Extension Center of the university of the authors. The followers of this page are especially interested in research related with health workers in the context of the COVID-19 pandemic. However, many of those who are active in social media do not work in hospitals. Therefore, it was made clear that the survey was only for those who worked in hospitals during the pandemic.

The invitation to participate was published on social networks daily during the period of data collection (three months). Only 81 health workers were reached. Six respondents were not from Ceará, but from other states, such as Pernambuco, the Federal District, Goiás, and Paraíba. However, we chose to keep their responses in our final sample.

Since the collection was online, it should be noted that the institutions in which these professionals worked were not identified. They were only required to indicate whether their place of employment was in the municipal, state, federal, or private network, making it impossible to detail the characteristics of these hospitals.

The participants received a declaration informing them about the objectives of the study and ensuring their data was protected. They were also sent an Informed Consent Form. The participant would only have access to the instrument after agreeing to participate in the research. They were considered to agree when they selected the option "accept to participate" and informed their name and personal email. Furthermore, the participant had the right to download a copy of the Informed Consent and was instructed to store a copy of said document. It should be noted that the participants received no incentive whatsoever to participate. Responding to the research was voluntary, and participants had the right to abandon the study at any time, simply stopping answering or choosing not to send the responses.

Three instruments were distributed using the same access link: A sociodemographic and occupational survey; the Brazilian version of the Schutte Self Report Emotional Intelligence Test (SSEIT)[16]; and the Brazilian version of the Safety Attitudes Questionnaire – SAQ[17].

The first instrument gathered information on the following variables: sex, marital status, age, professional category, time since graduation (in years), time working in the current field (in years), post-graduation, number of jobs, weekly workload, type of ward, work shift, employment relationship, mean number of patients under responsibility of the worker during duty. Furthermore, they were asked to indicate their

perception on the quality of care, the suitability of human resources, the suitability of material resources, the suitability of technological resources, and professional satisfaction in their work units during the pandemic period.

The Brazilian version of the SSEIT is a short, self-applicable survey with 33 items separated in four domains. Responses were in five-point Likert scale, from "Strongly Disagree" to "Strongly Agree". The total score varies from 33 to 165, and the higher the score, the higher the level of emotional intelligence[16]. The values of items 5,28, and 33 must be inverted before being added to the total[16].

The SSEIT has the following domains: D1 – Appraisal and expression of emotion (AEE) (items 5,9,15,18,19,22,25,29,32, 33), which deals with the ability to monitor and identify one's own emotions and those of others; D2 – regulation of emotion (RE) (items)2,3,10,12,14,21,23,28, 31), which relates with one's ability to regulate/manage one's own feelings and emotions; D3 – regulation of the emotions of others (REO) (items 1,4,11,13,16,24,26, 30), which is related with one's ability to regulate/manage the feelings and emotions of others; D3 – utilization of emotion (EU) (items 6,7,8,17,20, 27), which deals with one's ability to use their perception and regulation of their own emotions and those of others to guide their thoughts and actions[16].

To investigate the safety climate, we used a version of the 2006 Safety Attitudes Questionnaire (SAQ) – Short Form, translated into Brazilian Portuguese. This instrument evaluates organizations, producing important diagnosis and interventions for patient safety. It includes 36 items in a five-point Likert scale (("Strongly disagree", "Somewhat disagree", "Neutral", "Somewhat agree", "Strongly agree", "Not applicable"). Its domains include organizational, work environment, and team factors: D1 – Teamwork Climate (items 1 to 6); D2 – Safety Climate (items 7 to 13); D3 – Job Satisfaction (items 15 to 19); D4 – Stress Recognition (items 20 to 23); D5 – Perceptions of Management – Ward and Hospital (items 14, 24 to 29); D6 – Working Conditions (items 30 to 32); and D7 – Safe Behaviors (items 33 to 35)(17).

Answers to the SAQ are scored as follows: A=0, B=25, C=50, D=75, and E=100. Items 2,11, and 36 are scored inversely: A=100, B=75, C=50, D=25, and E=0. The score of each domain is found by adding up the score of each question and dividing the result by the number of questions responded, excluding those with the answer "not applicable". Scores above 75 suggest the presence of attitudes that favor patient safety, showing a positive safety climate[17].

To analyze the data, we used the software Statistical Package for the Social Sciences (SPSS), version 11.5. We carried out analytical and descriptive (frequencies, measures of central tendency and dispersion) analyses.

The perception of the safety climate was the chosen outcome, while the predictor was the level of emotional intelligence. To analyze this relationship, we used correlation and association tests. To establish a correlation between SSEIT and SAQ domains, we used Spearman's correlation, interpreting the values found according to their proximity to the following:0, no linear relationship; 0.30, weak relationship; 0.50 moderate relationship; 0.70 strong relationship; and 1, perfect linear relationship[18].

To check for an association between variables, we carried out a simple linear regression analysis to investigate up to what point the levels of emotional intelligence (predictors) explained the perception of the professional regarding the safety climate for the patient (outcome). We also carried out a multiple linear regression (forward method) in order to investigate the extent to which each of the four dimensions of emotional intelligence (predictor) impacted the perception of the patient's safety climate (outcome). The significance level used for the tests was 0.05, and the confidence interval was 95%.

The study was approved by the Research Ethics Committee research (nº. 4.784.245/2021 and CAEE: 45501921.8.0000.5534). Due to the pandemic, the recommendations of the Circular Letter No. 2/2021 of the National Research Ethics Committee, which provides recommendations regarding the procedures of research that has at least one stage in a virtual environment. Participants were not identified, nor was their contact information made available to third parties.

RESULTS

81 health workers participated in the study. Table 1 shows sociodemographic and occupational variables of the participants.

There was a mostly female sample, with experience in the field, considering their time since graduation, providing service, and working (more than 10 years). All of them came from the state of Ceará, were nurses, and had a weekly workload below 40 hours. Slightly more than half were public servants and worked in state hospitals. Among higher education workers, most had post-graduations. Regarding the department where they worked, the distribution among wards was heterogeneous. Maternity and Obstetrics, however, stood out.

Table 2 shows the standard deviation and the reliability statistics in the Brazilian versions of Schutte Self-Report Emotional Intelligence Test and the Safety Attitudes Questionnaire.

Table 1 – Distribution of participants according to sociodemographic and occupational variables (n=81). Fortaleza, Ceará, Brazil, 2021

Variable	Mean	SD
Age (years)	40.6	9.9
Time since graduation (years)	14.3	10.0
Time working in the field (years)	11.6	9.7
employment time (years)	13.4	9.5
Weekly workload	38.3	13.3
Mean number of patients under your responsibility on duty	16.8	15.3
	f	**%**
Sex		
Female	75	92.6
Male	6	7.4
State		
Ceará	72	88.9
Pernambuco	6	7.4
Other[a]	3	3.7
City origin		
Capital	76	93.8
Countryside	5	6.2
Professional category		
Nurse	50	61.7
Nursing technician / auxiliary	23	28.4
Physician	4	4.9
Other[b]	4	4.9
Postgraduate Studies		
Yes	59	72.8
No	22	27.2

Table 1 – Cont.

Variable	Mean	SD
Type of employment		
Public servant	45	55.6
Cooperative	16	19.8
CLT (under Consolidation of Labor Laws rules)	12	14.8
Other[c]	8	9.9
Hospital		
Municipal	7	8.6
State	53	65.4
Federal	13	16.0
Private	8	9.9
Department		
Medical Ward	9	11.1
Surgical Ward	2	2.5
Obstetrics (delivery room, obstetric center, joint accommodations, emergency)	19	23.5
Pediatrics (medical unit or pediatric ICU)	5	6.2
Maternity ward (ICU, medium risk unit, and Kangaroo)	25	30.9
Emergency Department	5	6.2
Adult ICU	5	6.2
Outpatient clinic	2	2.5
Many different areas of the same hospital	4	4.9
Other[d]	5	6.2
Work shift		
Morning only	9	11.1
Afternoon only	2	2.5
Morning and afternoon	35	43.2
Night	35	43.2

Source: Authors.
Caption: [a]. Federal District, Goiás, Paraíba; [b]. Pharmacist, Nutritionist; [c]. Unspecified; [d]. Unspecified

Regarding the SSEIT, participants showed a high level of emotional intelligence. The domains "Appraisal and perception of emotions" and "Regulation of emotion" were better developed, while "Utilization of emotion" showed the lowest level.

As for the SAQ, the mean overall score shows a negative perception of the safety climate. Only the domains "job satisfaction" and "stress recognition" had positive results. The worst result was in the domain "perceptions of management".

Table 3 shows a correlation between the Schutte Self-Report Emotional Intelligence Test and the Safety Attitudes Questionnaire (SAQ)

An analysis of the correlation between SSEIT and SAQ scores showed a statistical difference between the self-reported emotional intelligence and the safety climate. Table 4 shows the correlation between the domains of the instruments SSEIT and SAQ.

We found a significant statistical correlation between several domains. All, however, presented a weak correlation. However, correlations between "Regulation of the emotions of others" (Domain 3 of the SSEIT) and "Job satisfaction" (Domain 3 of the SAQ), and between "Regulation of the emotions of others" (Domain 3 of the SSEIT) and "Working conditions" (Domain 6 of the SAQ) showed a moderate correlation. That shows that the scores of these two safety climate domains increase when the domain "Regulation of the emotions of others" is higher.

Table 2 – Distribution of mean and standard deviation values and reliability statistics of the Schutte Self Report Emotional Intelligence Test and the Safety Attitudes Questionnaire. Fortaleza, Ceará, Brazil, 2021

Variable	Mean	SD	Nº Items
SSEIT – Brazilian version			
Domain 01: Appraisal and expression of emotion	38.00	5.48	10
Domain 02: Regulation of emotion	38.28	4.48	9
Domain 03: Regulation of the emotions of others	32.87	4.18	8
Domain 04: Utilization of emotion	24.44	3.90	6
Overall Score[a]	133.60	14.06	33
SAQ – Brazilian version			
Domain 01: Teamwork climate	65.38	20.02	6
Domain 02: Safety climate	60.58	20.28	7
Domain 03: Job satisfaction	78.52	9.75	5
Domain 04: Stress recognition	85.03	18.19	4
Domain 05: Perceptions of management	52.88	21.97	12
Domain 06: Working Conditions	54.84	29.13	3
Domain 07: Safe behaviors	61.73	19.62	4
Overall score[b]	65.56	15.10	41

Source: Authors.
Caption: [a]. The overall score varies from 33 to 165. The higher the score, the higher the level of emotional intelligence. [b]. Scores above 75 show a positive safety climate.

Table 3 – Correlation between the Schutte Self-Report Emotional Intelligence Test and the Safety Attitudes Questionnaire (SAQ) (n=81) Fortaleza, Ceará, Brazil, 2021

		General	General Domain
General	Pearson's correlation	1	0.454**
	Sig. (bilateral)		0.000
	N	81	81
General Domain	Pearson's correlation	0.454**	1
	Sig. (bilateral)	0.000	
	N	81	81

Source: Authors.
**The correlation is significant at the level of 0.01 (bilateral).

Table 4 – Correlation between the domains of the Schutte Self-Report Emotional Intelligence Test and the domains of the Safety Attitudes Questionnaire (SAQ) (n=81) Fortaleza, Ceará, Brazil, 2021

Self-report of EI (SEEIT) / Safety Climate Questionnaire (SAQ)		D1 Teamwork climate	D2 Safety climate	D3 Job satisfaction	D4 Stress recognition	D5 Perceptions of management	D6 Working conditions	D7 Safe behaviors
D1 – Appraisal and expression of emotion	Correlation coefficient	0.276*	0.226*	0.372**	-0.018	0.251*	0.263*	0.254*
	Sig. (bilateral)	0.013	0.042	0.001	0.872	0.024	0.018	0.022
D2 – Regulation of emotion	Correlation coefficient	0.211	0.238*	0.413**	-0.066	0.240*	0.295**	0.210
	Sig. (bilateral)	0.059	0.032	0.000	0.559	0.031	0.008	0.060
D3 – Regulation of the emotions of others	Correlation coefficient	0.373**	0.420**	0.483**	0.014	0.353**	0.449**	0.394**
	Sig. (bilateral)	0.001	0.000	0.000	0.901	0.001	0.000	0.000
D4 – Utilization of emotion General	Correlation coefficient	0.266*	0.266*	0.354**	0.231*	0.316**	0.270*	0.405**
	Sig. (bilateral)	0.016	0.016	0.001	0.038	0.004	0.015	0.000

Source: Authors.
*Correlation is significant at the 0,05 level (bilateral). **The correlation is significant at the level of 0.01 (bilateral).

We carried out a simple linear regression analysis to investigate up to what point the emotional intelligence levels explained the perception of the safety climate of the patient by the professionals. Emotional intelligence had a statistically significant influence on the perception of a patient's safety climate (F (1, 79) = 20.423 p< 0.001; adjustedR2 = 0.196). The regression coefficient B (B = 0.487, 95% [CI = 0.273 – 0.701]) suggested that, on average, the increase of one point of emotional intelligence levels led to an increase of 0.487 in the perception of the patient safety climate.

Furthermore, we carried out a multiple linear regression analysis (forward method) to investigate the extent to which the four dimensions of emotional intelligence impact the perception of the patient's safety climate.

The results showed that there is a significant influence on the perception of the patient safety climate (F (2.78) = 11.339, p 0.001; adjusted R2 = 0.205). Table 5 shows the coefficients for all significant predictors. The variable that impacted the most the perception of the patients' safety climate was domain 03, which explained 16.8% of the outcome (patient's safety climate), while domain 04 was related to only 4.7% of the variance of the safety climate of the patient.

On average, we found that an increase of one point in the standard deviation in the scores of domain 3 increases the standard deviation in the overall patient safety climate scores by 0.334. For every one-point increase in the standard deviation of domain 04, the standard deviation of the safety climate of the patient increases in 0.234.

Table 5 – Emotional intelligence variables that are predictors of the safety climate. Fortaleza, Ceará, Brazil, 2021

Predictors	Standardized coefficients	t	Sig.	R^2	DR^2
	Beta				
(Constant)	-	0.285	0.000	-	-
Domain 03 – Regulation of the emotions of others	0.334	3.101	0.003	0.168	-
Domain 04 – Utilization of emotion	0.234	2.175	0.033	0.205	0.047

Source: Authors.

DISCUSSION

In accordance with previous national and international research, we found a high level of self-reported emotional intelligence and a low perception of climate safety on the part of Brazilian health workers, although other investigations used different instruments to measure these constructs[19–21].

A good appraisal and perception of emotion was also found in a research with nurses who cared for COVID-19 patients[21], showing that at good perception and use of emotions is the first step for their proper management, and can even influence the adoption of safe behavior in the work environment.

As for the findings involving the Safety Climate, a previous research also found a negative perception, applying the SAQ to 50 nurses from a Brazilian teaching hospital. While in this study the domains of job satisfaction and stress recognition had positive results, other researchers found better scores, despite an overall result that was also negative[20].

It should be noted that a good perception of safety climate does not necessarily mean that safe behaviors are adopted. The climate is simply a reflection of the safety culture of the institution. However, if workers notice factors such as teamwork, stress perception, satisfaction, and the role of management as positive, they are likely to have a more positive perception of the safety climate as a whole.

The relationship between the two constructs can be better understood by analyzing a study that included 211 Iranian nurses, which found that those with the highest levels of EI had the resources to show a better performance due to engagement at work. Thus, higher EI levels allow health workers to take advantage of a better occupational

performance, becoming even more committed to work, with the ultimate goal of feeling fulfilled and maintaining stability in times of great demands and uncertainties[21].

It is worth noting that stress recognition was positive, suggesting that workers were able to identify stressors present in their daily practices during the COVID-19 pandemic. On the other hand, the worst domain evaluated was "perceptions of management", a result similar to that of other research, where it was associated to a distancing between the direct assistance team and management. This led to the conclusion that the bonds between these groups have to be strengthened[20].

This consideration makes sense for this research, since all participants here work in direct assistance and most are nursing workers. Their potential distance from management may be an explanatory factor for their negative perception regarding management, which is usually in a vertical hierarchy. In this regard, authors state that, the more horizontal the relationship between the direct assistance team and the management of the institution, the greater will be the professional contribution of one professor to the other and the safety of care[20].

The correlation between the perception of the safety climate and the emotional intelligence was also clear in other international studies with large samples of health professionals[22–24]. Researchers[22–23] also found that the appraisal of emotions influenced safety results. The results were more pronounced with beneficial care or less pronounced with prejudicial care, depending on the emotions experienced in meetings with patients. Positive emotions were associated with positive results, and negative emotions with negative ones.

This allows us to infer that appraising and perceiving emotion is not only associated to the quality of the relationship between health workers and patients, but also influences the relationship among professionals in the working team, and between the team and management. Furthermore, considering the association with the leadership and the factors that facilitate this relationship, we discovered that leaders who control their own emotions contribute to develop their ability to adapt and accept change, seeking innovation at work; it can also lead to leaders who value empathy and can easily establish emotional connections with the members of the team, often being able of constructing relationships based on bonds of trust[25].

In addition, the ability of appraising and perceiving emotion makes the professional more apt to demand the changes that their work environment needs to thrive, as stated by a study carried out with 1,549 health workers from many different Spanish hospitals during the second semester of 2020[26]. This investigation showed professionals with high levels of emotional intelligence and, consequently, an internal resourcefulness that was ideal to deal with demanding issues at work, maximizing their involvement. This increased their perception of continued efficiency at work, leading to improved work with higher performance indicators.

Another Spanish study with 125 nurses reiterated this, showing the importance of the abilities to regulate and perceive emotion while being aware of and empathizing with the emotions of others, since the ability to deal with emotional components increases the effect of social support on job satisfaction, reducing the effect of the lack of organizational justice on their satisfaction[27].

This understanding is associated with the domains "regulation of emotion" and "regulation of the emotions of others" of the SSEIT, which have a statistical correlation with almost all dimensions of the SAQ. Being able to manage one's own emotions and those of others, after correctly perceiving them, has a direct influence on achieving a more intense effect on another[27].

These social abilities are essential to influence the aspects of these dimensions of SAQ. Regarding the actions of people in leadership positions, for example, these abilities converge into a more horizontal communication, in addition to more assertive decision making and negotiation processes[25].

It can also be stated that the EI contributed for a safer organizational climate, with safety-oriented behaviors and better working conditions, since communication skills provide the basis for the continuous improvement of hospital services[28].

Regarding the correlation between the domain "utilization of emotion" of the SSEIT, understood as the ability to act based on the perception and regulation of one's own emotions and those of others, and the domains of the SAQ, it was made clear that emotional intelligence helps perceiving and regulating one's emotions, in addition to being aware of and empathetic with other's emotions, which leads to a mutual effect, highlighted by emotional attention[16,27].

In this aspect, it is worth emphasizing the influence of "utilization of emotion" on the domain "stress recognition", since a previous study showed that, up to certain degree, EI can be a risk factor for some psychosocial risks, such as interpersonal conflicts or lack of organizational justice, due to emotional attention. The study pointed out that a high level of emotional attention or empathy can increase vulnerability, in which case it can have a negative impact over job satisfaction[27].

Considering this perspective, another study pointed out that EI scores were negatively associated with constructs such as stress, despite its positive connection with work performance[29].

It should be highlighted that these studies, as well as ours, were carried out in the context of the COVID-19 pandemic. This is a factor with the potential of triggering stressful situations, as confirmed by another study that states that pandemic and epidemic infectious diseases, such as COVID-19 or MERS-CoV impose a significant level of anxiety and stress to the health workers who care for the infected patients, their main concern being the risk of transmitting the infection to their families or acquiring it themselves[30].

Regarding the findings of this research about how the emotional intelligence levels help increase the perception of a safety climate, other researchers corroborate our findings, highlighting the influence of EI in the quality (safe and effective) of patient care. Aspects such as client satisfaction and positive clinical results were also correlated with EI ability. In addition to a study which states there was a positive result and a significant relation between emotional intelligence and a patient safety culture[24].

Corroborating the findings presented in Table 5, previous research attempted to develop a broader understanding of the emotional experiences of professionals working in the emergency department, including what triggered their emotions, the perceived effects of emotions on clinical decision making and patient care, and the strategies that professionals used to manage their emotions in order to reduce safety risks. This study revealed that professionals made efforts to reduce patient risk, remaining emotionally distanced and, as a result, ignoring the emotions of others. However, these strategies of distancing from emotions were found to be less effective, while strategies of emotional involvement, including emotional perception, management, and intelligent use, were found to be more effective[23].

One of the greatest challenges faced by health workers to manage their own emotions and the emotions of others, simultaneously, in the setting of the COVID-19 pandemic, was dealing with the overload of negative feelings, which could generate fear, anguish, and depression, in addition to the need to keep self-control, endure the emotional turmoil, exercise temperance, and contain the excess of negative and tragic information, in and out of the work environment[25].

Limitations of this study include sample size, the fact the study was carried out in a single region of the country, the non-homogeneous distribution of professional categories (with a predominance of nursing) and departments where the professionals work, considering that obstetrics and maternity wards were exposed to the challenges imposed by the pandemic differently than other critical units, such as ICU and emergency.

CONCLUSION

Higher emotional intelligence levels in health hospital workers was associated to a greater perception of safety climate in the COVID-19 pandemic, and the ability to regulate the emotions of others was the domain with the strongest involvement when it comes to the correlation with other constructs.

This suggests that investing in training programs and developing emotional skills can be efficient strategies to improve one's safety climate perception in hospitals, which has been extensively presented in national and international literature.

Further research should investigate how the regulation of the emotions of others is developed and perceived in the daily life of health workers, to help produce more robust scientific evidence about the topic.

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