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The effect of sensitivity to emotional contagion on individual and organizational outcomes in nurses: A cross-sectional and correlational study

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Abstract

Background: Nurses are at risk due to emotional demands and the possibility of physical and mental health deterioration. This is because they often have to care for physically or mentally vulnerable patients. This study aimed to examine the effect of sensitivity to emotional contagion on nurses' physical health, mental health (individual outcomes), job performance, and quality of nursing care (organizational outcomes).

Methods:

A correlational and cross-sectional design was employed. Data were collected between September 2020 and January 2022. The study sample consisted of 357 nurses working in Türkiye and 465 patients hospitalized in units where these nurses provided care. The data pertaining to the nurses were collected by the General Information Questionnaire-Nurse, the Emotional Contagion Scale, the Physical and Mental Health Scale, the Job Performance Scale. The data pertaining to the patients were collected by the General Information Questionnaire-Patient and the Care Behaviors Inventory-24. Data were evaluated using descriptive statistics, Pearson's correlation analysis, and simple regression analysis.

Results:

Pearson correlation analysis showed a statistically significant, very weak positive correlation between sensitivity to emotional contagion and mental health. There was no significant correlation between the nurses' sensitivity to emotional contagion and the quality of care perceived by the patients, examined as physical health, job performance. Regression analysis showed that sensitivity to emotional contagion had a statistically significant negative effect on nurses' mental health.

Conclusion

The data showed sensitivity to emotional contagion and poor mental health among the nurses. Sensitivity to emotional contagion negatively affects nurses' mental health. Despite the presence of sensitivity to emotional contagion and poor mental health of the nurses, work performance and quality of care perceived by the patient were high. It may show that nurses do not display the negativity they experience in their care behaviors. Nurse managers should develop supportive systems in the workplace to support the continuity of quality care.

1 BACKGROUND

Health institutions constantly aim for high-quality healthcare, and many actors play a role in the delivery of services. The implementation of protocols in the healthcare sector is of paramount importance, as failure to implement them correctly can lead to dire consequences, including the potential for disability and even death [1]. Care represents a pivotal component within the overarching framework of the healthcare system. It is imperative to acknowledge the pivotal role that nurses, as primary healthcare providers, play in enhancing the quality of care for patients and the public [2]. The nature of nursing is

inherently emotional, as it frequently entails the care of patients who are physically or mentally fragile. In the working environment of a hospital, where many intense and diverse emotions arise, nurses need to recognize and manage their emotions not only to provide quality care services but also for their own mental and physical health [3]. Nurses who cannot control their emotions experience emotional exhaustion in the workplace [4]. If nurses can recognize and manage their emotions, it will be easier for them to make clinical decisions, deal with different situations, and improve their nursing practices [5–6]. In summary, emotions are an integral part of the nursing process [5]. Therefore, the study of emotional processes makes an important contribution to the value and improvement of healthcare.

Emotional interaction is considered a form of communication that involves the exchange of emotions, actions, and experiences among nurses and other healthcare professionals involved in patient care [5]. This exchange of emotions was conceptualized by Hatfield, Cacioppo and Rapson as “emotional contagion” (1993) [7]. Emotional contagion is defined as a personal characteristic that indicates the extent to which employees personally experience and amplify the (positive and negative) emotions of those around them [8]. It has been observed that emotions can be transmitted in a manner analogous to the propagation of diseases, contingent upon the presence of a source and a receiver [9]. The sensitivity of the individual is an effective factor in this context. Sensitivity is defined as the tendency to automatically imitate and synchronize the expressions of others and to experience or capture the emotions of others through afferent feedback from facial or skeletal activity. The perception of an emotional expression can cause the perceiver to imitate the elements of that expression and consequently experience similar emotional states (e.g., smiles to smiles, etc.) [10]. Individuals who demonstrate a heightened response to high-intensity emotional stimuli are particularly susceptible to emotional reactivity [11]. It has been established that the objectives of individuals experiencing emotional contagion are often aligned, and the emotions of one individual can influence the emotional state of the entire group [12].

In hospital environments characterized by high levels of sensory stimulation, nurses exhibit a heightened propensity to disclose the emotional expressions to which they are exposed. This observation suggests the potential for emotional contagion to occur within the hospital environment [10]. Healthcare workers are expected to be more sensitive to emotional contagion than other employees [13]. Hatfield et al. (1993) stated that nurses are among the professions that need to develop resistance to contagion [7]. Emotions have been found to be transmitted between physicians, nurses, and patients [13], and between nurses and their colleagues [14]. Petitta et al. (2016) discovered that nurses frequently experience emotions such as joy and anger towards their managers, colleagues, and patients [13].

Emotional experiences at work influence employee behavior, which is related to individual and organizational outcomes [15]. Emotions are known to influence physical and mental health [16]. The capacity to discern and regulate one's own emotions, as well as those of others, is paramount to ensuring optimal physical, mental, and social well-being. Emotional problems in the workplace are a significant concern for healthcare professionals. These problems have individual consequences, such as a decrease in productivity and overall quality of life, as well as reduced physical and emotional well-being

[17]. The physical and mental health of workers who alter, suppress or mimic the emotions expected of them in order to conform to workplace goals in other words, who emotionally labor are negatively affected and their overall health is weakened [18, 19]. Previous studies have shown that work-related stressors lead to mental health problems, such as anxiety and depression, and physical health problems, such as heart disease [16]. Given the numerous stressors to which nurses are exposed in the workplace, the impact of workplace stress on mental and physical health is exacerbated [20]. The mental workload of nurses [21] and the prevalence of mental health problems (anxiety and depression) in nurses are high [22]. In summary, the literature indicates that nurses working in a stressful environment, such as a hospital, experience a significant physical and psychological burden [21, 23]. A substantial body of research has demonstrated that more than half of nurses do not possess optimal physical and mental well-being [24]. Specifically, their physical health is moderate and their mental health is poor [25].

Emotional responses in professional settings elicit consequences that manifest both at the individual level and within organizational frameworks. Healthcare professionals are particularly susceptible to stress and burnout, as their roles involve the care of human lives, which can have adverse consequences for their patients [17]. The emotional weakness of nurses affects the quality of care [26]. The provision of high-quality and effective nursing care has been demonstrated to result in a reduction in hospitalization, costs, and complications, as well as an increase in patient satisfaction [27]. However, anxiety and tension reduce the quality of care [17]. Nurses need to control their feelings of anger and anxiety and use empathy to provide quality care [28]. The physical and mental exertion inherent to the nursing profession can result in emotional exhaustion and a consequent diminution in the ability to provide quality care [29]. In summary, emotional control plays an important role in shaping nurses' caring behaviors [30].

Nurses' personal emotions also play an important role in their performance [31]. Job performance is another organizational outcome of the emotional experience at work. Healthcare workers need to develop their social relationships and improve their job performance by keeping their emotions under control [32]. Variables such as bullying [33] and stress [34] have been found to decrease nurses’ job performance. The phenomenon of emotional contagion, in which individuals' emotional states are influenced by the emotions of others, has been demonstrated to exert a detrimental effect on the professional performance of employees [35]. Barsade (2002) found that those who experience positive emotions experience less conflict, and their work performance increases [36]. Previous studies have reported that sensitivity to emotional contagion affects performance [37, 38].

Given the pivotal role nurses play in patient care and health services, it is imperative to examine the individual and organizational repercussions of sensitivity to emotional contagion. Investigating these results will indirectly contribute to improving the quality, safety, and value of healthcare services. It is known that sensitivity to emotional contagion has both positive and negative effects on nurses. To the best of our knowledge, the individual (physical and mental health) and organizational consequences (job performance and quality of nursing care as assessed by patients) of nurses’ emotional influences have not yet been studied together. Examining these results can provide important evidence on how to increase the physical and mental health levels of nurses and how to improve job performance and

quality of nursing care. In this context, this study aimed to examine the effects of sensitivity to emotional contagion on physical and mental health (individual outcomes), job performance, and nursing care quality (organizational outcomes).

1.1 Hypothesis model

The hypothesis model of this study is based on the existing literature on sensitivity to emotional contagion, physical and mental health, job performance, and quality of nursing care (see Fig. 1).

H_1

Sensitivity to emotional contagion affects nurses' (a) physical health, (b) mental health, (c) job performance, and (d) quality of care.

H_2

Nurses' physical health affects (a) mental health, (b) job performance, and (c) quality of care.

H_3

Nurses' mental health affects (a) physical health, (b) job performance, and (c) quality of care.

H_4

Nurses' job performance affects the quality of care.

H_5

Physical health has an indirect effect on the effect of sensitivity to emotional contagion in nurses on (a) job performance and (c) quality of care.

H_6

Mental health has an indirect effect on the effect of sensitivity to emotional contagion in nurses on (a) job performance and (c) quality of care.

2 METHODS

2.1 Study design

The study has a cross-sectional and correlational design.

2.2 Setting and participants

The study population consisted of nurses (N = 1290) and patients from (N = 13174) four hospitals in Türkiye: a training and research hospital, two city hospitals, and a state hospital. Data were collected simultaneously from nurses and patients. The inclusion criteria for nurses were as follows: First, the nurses had to have at least six months of experience working in inpatient units. Second, they had to be willing to participate in the study voluntarily. To determine the sample size for the nurses, the minimum number of nurses to be included in the sample was set at 296 using the sample size calculation formula for a known finite population (N = 1290). Data were collected from nurses working in the hospitals' inpatient clinics using convenience sampling. Participating nurses were asked to rate their level of sensitivity to emotional contagion, their physical and mental health, and their job performance. The quality of nursing care was assessed based on reports from volunteer patients who were hospitalized for at least three nights during the data collection period, were conscious, had no communication barriers, could read and write in Turkish, were 18 years or older, and volunteered. However, since the comparisons are made with nurses, the number of patients must be equal to or greater than the minimum number of nurses (n = 296). Accordingly, the minimum number of patients included in this study was 296. Finally, 357 nurses and 465 patients completed the data collection instruments.

2.3 Measures

2.3.1 Data Collection Instruments for Nurses

In order to obtain the characteristics of the participants, the researchers created separate information forms for nurses and patients. The information form for the nurses contained a total of 12 items on personal (gender, age, marital status, educational level, status of having children, and number of children) and professional characteristics (professional tenure, tenure in the then-current hospital and unit, work schedule, and weekly working hours).

The Emotional Contagion Scale was developed by Doherty (1997) to determine how sensitive people are to capturing others' emotions [10]. The scale adapted into Turkish by Akın et al. (2015) was used in this study [39]. The scale consists of 15 one-dimensional, 5-point Likert-type items (1 = never, 5 = always). The higher the average score obtained from the scale, the higher the sensitivity to emotional contagion. The Cronbach's alpha was 0.90 in the original scale [10], 0.75 in the Turkish version [39], and 0.89 in this study.

Physical and mental health was assessed using the Turkish version of the Short Form-36 (SF-36) Health Survey Questionnaire developed by Ware and Sherbourne (1992) Kocyigit et al., (1999) [40–41]. The nurses rated a total of 36 items, including 35 items covering the two main dimensions of physical and mental health and one item expressing the perceived change in health status compared to the previous year, namely, "Compared to one year ago, how would you rate your health in general now?". The total score on the scale is 100 points, with scores for the two dimensions ranging from 0 to 100 points. High scores on this scale indicate a better state of health. The scale is composed of two distinct mean scores, which collectively summarize the physical and mental health scores. The summary of scores for physical and mental health were calculated using the guidelines established by Ware et al. (1993) and

Ware et al. (1994) [42–43]. The Cronbach's alpha value for the physical and mental health dimensions were 0.62 and 0.94 in the original scale [40], 0.73 and 0.76 in the Turkish version [41], and 0.88 and 0.75 in this study, respectively.

Job performance was assessed using the Turkish version of the Job Performance Scale (Col, 2008), developed by Kirkman and Rosen (1999) and later adapted by Sigler and Pearson (2000) into a four-item version [44–46]. Responses are recorded on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The Cronbach's alpha was 0.94 in the original scale [45], 0.83 in the short form of [46], 0.82 in the Turkish version [44] and 0.93 in this study.

2.3.2 Data Collection Instruments for Patients

The patient information form contained a total of nine items about the patient (gender, age, marital status, and education level) and other information about the hospitalization (health status, length of stay in hospital, whether there was a companion, hospital, and unit).

Patients (or their family members) were asked to rate the quality of care provided by nurses by filling out the Care Behavior Scale-24. The Care Behavior Scale-24 was developed by Wu et al. (2006) to assess the quality of nursing care [47]. It consists of two parts in which nurses (24 items) and patients (24 items) jointly evaluate the nursing care process, with a total of 42 items. In this study, the Turkish version [48] of the 24-item part of the scale for patients was used (e.g., giving the patient the opportunity to explain their feelings about their illness or treatment). The scale consists of four dimensions (assurance, knowledge-ability, respect, and engagement) and is answered on a 6-point Likert scale (1 = never, 6 = always). The total scale score was calculated by dividing the sum of all item scores by 24. The higher the score, the higher the quality of care perceived by the patients. The Cronbach's alpha value was 0.88 in the original scale [47], 0.96 in the Turkish version [48] and 0.96 in this study.

2.4 Ethical considerations

Prior to the start of the research, ethical approval was obtained from the Social Sciences and Humanities Research Ethics Committee of Istanbul University-Cerrahpaşa with the decision dated 04/09/2020 and number 52832. Written official permission to conduct the research in the planned hospitals was obtained from the Istanbul Provincial Directorate of Health. Permission was received via e-mail from the researchers who adapted the data collection tools used in the study to the Turkish language and conducted the validity and reliability studies. Informed consent was obtained from all participants. The principles of the Declaration of Helsinki were followed in conducting the study.

2.5 Data collection

Study data was collected between September 2020 and January 2022. The researchers carried out the data collection procedures. After the nurses were fully informed about the purpose of the study, consent forms were signed. Furthermore, we provided assurance that all data would be used exclusively for research purposes and would remain anonymous. The nurses received the data collection tools in person and were allotted 15 to 20 minutes to complete them. The researchers visited the patients,

obtained their signatures on consent forms, and then provided instructions for completing the data collection tools. The duration of this process was approximately 15–20 minutes.

2.6 Data analysis

Data analysis was performed with SPSS v26.0. Descriptive statistics were used to summarize the variables of the study. Continuous variables were checked for normality using the values for skewness and kurtosis, and were found to be within the acceptable range (skewness: ±1.5, kurtosis: ±7) [49]. When variables related to nurses were analyzed among themselves, they were evaluated at the individual level (357 nurses). When variables related to patients were added, they were evaluated at the unit level, by comparing the nurses and the patients they cared for in the same unit (21 units). Pearson's correlation analysis was used to examine the relationships between sensitivity to emotional contagion and physical health, mental health, job performance, and quality of nursing care. A simple regression analysis was used to estimate the effects of sensitivity to emotional contagion on physical and mental health, job performance, and quality of nursing care. Significance levels of 0.05 and 0.01 were used throughout the study.

3 RESULTS

3.1 Characteristics of nurses and patients

Of the nurses, 80.1% were female, 70% were between 18–28 years old, 60.2% were single, and 47.9% had a bachelor's degree. Of the nurses, 74.2% were childless, and 52% had two or more children. Most nurses (65.5%) had been in the profession for five years or less, and the length of time they had worked at the hospital was 6–10 years (46.8%). Of the nurses, 34.7% worked at a city hospital, 58% worked in internal medicine units, 79.2% worked rotating shifts (day and night), and 80.39% worked 45–55 hours per week (see Table 1).

Table 1
Characteristics of nurses (N = 357)

Variables	Category	Frequency (n)	Percentage (%)
Gender	**Female**	**286**	**80.1**
	Male	71	19.9
	Total	**357**	**100**
Age	**18–28 years old**	**251**	**70**
	29–39 years old	72	20
	40 years and above	34	10
	Total	**357**	**100**
Marital status	**Single**	**215**	**60.2**
	Married	142	39.8
	Total	**357**	**100**
Educational level	High school	44	12.3
	Associate degree	35	9.8
	Licence	**171**	**47.9**
	Postgraduate	107	30
	Total	**357**	**100**
Having children	**No**	**265**	**74.2**
	Yes	92	25.8
	Total	**357**	**100**
Number of children	1 child	44	48
	2 children and above	**48**	**52**
Length of professional experience	**5 years or less**	**234**	**65.5**
	6–10 years	62	17.4
	11–15 years	20	5.6
	16 years and above	41	11.5
	Total	**357**	**100**
Years of employment in the hospital	5 years or less	117	32.8

Variables	Category	Frequency (n)	Percentage (%)
	6–10 years	**167**	**46.8**
	11–15 years	30	8.4
	16 years and above	43	12
	Total	**357**	**100**
Hospital	City hospital-1	72	20.2
	Public hospital	46	12.9
	Training and research hospital	115	32.2
	City hospital-2	**124**	**34.7**
	Total	**357**	**100**
Unit	**Internal**	**208**	**58**
	Surgical	149	42
	Total	**357**	**100**
Work schedule	Continuous day shift	67	18.8
	Rotating shifts (day and night)	**283**	**79.2**
	Continuous night shift	7	2
	Total	**357**	**100**
Weekly working hours	**45–55 hours**	**287**	**80.39**
	56–66 hours	63	17.65
	67 hours and above	7	1.96
	Total	**357**	**100**

Of the patients, 48.8% were female, 52% were 50 years old or older, 75.9% were single, and 43.4% had completed primary school. Of the patients, 50.3% were hospitalized in the training and research hospital, 52% were in the surgical units, and 67.1% had been hospitalized for 3–8 days. A total of 93.8% of the patients had a companion, and 47.1% stated their health status as "good" (see Table 2).

Table 2
Characteristics of the patients (N = 465)

Variables	Category	Frequency (n)	Percentage (%)
Gender	Female	227	48.8
	Male	**238**	**51.2**
	Total	**465**	**100**
Age	Under 18 years old	45	10
	19–29 years old	63	14
	30–40 years old	59	13
	41–51 years old	51	11
	52 years and older	**247**	**52**
	Total	**465**	**100**
Marital status	**Single**	**353**	**75.9**
	Married	112	24.1
	Total	**465**	**100**
Educational level	**Primary school**	**202**	**43.4**
	Middle school	130	28
	High school	103	22.2
	High education	30	6.4
	Total	**465**	**100**
Hospital	City hospital-1	84	18.1
	Public hospital	64	13.8
	Training and research hospital	**234**	**50.3**
	City hospital-2	83	17.8
	Total	**465**	**100**
Unit	Internal	223	48
	Surgical	**242**	**52**
	Total	**465**	**100**
	Total	**465**	**100**
Length of stay in hospital	**3–8 days**	**312**	**67.1**

Variables	Category	Frequency (n)	Percentage (%)
	9–14 days	93	20
	15 days or more	60	12.9
Companion status	**Yes**	**436**	**93.8**
	No	29	6.2
	Total	**465**	**100**
Health status	Poor	44	9.5
	Fair	156	33.5
	Good	**219**	**47.1**
	Very good	46	9.9

3.2 Descriptive findings regarding the scales

The mean score of the nurses participating in the study for sensitivity to emotional contagion was 3.32 (SD = 0.69) (min 1.2, max 5), the mean score for sensitivity to negative emotional contagion was 3.21 (SD = 0.73) (min 1.22, max 5), and the mean score of positive emotional sensitivity to contagion score was 3.48 (SD = 0.78) (min 1.17, max 5). The mean score for physical health was 42.78 (SD = 10.97) (min 11.85, max 70.25), the mean score for mental health was 27.03 (SD = 14.49) (min 11.99, max 63.94), and the mean job performance score was 4.11 (SD = 0.84) (min 1, max 5) (see Table 3).

Table 3
Sensitivity to emotional contagion and nurse outcomes (N = 357)

Variables	1	2	3	4	5	6
1. Sensitivity to emotional contagion	1					
2. Physical health	-0.016	1				
3. Mental health	**-0.163 ** **	**0.146 ** **	1			
4. Work performance	0.057	-0.002	0.065	1		
5. Negative SEC	**0.946****	-0.039	**-0.211****	0.040	1	
6. Positive SEC	**0.889****	0.018	-0.064	0.070	**0.693****	1
Mean	3.31	42.78	27.03	4.11	3.21	3.48
SD	0.69	10.97	14.49	0.84	0.73	0.78
Median	3.80	58.39	75.93	4	3.22	3.50
Min-Max	1.2-5	11.85–70.25	11.99–63.94	1–5	1.22-5	1.17-5
Score range	1–5	0-100	0-100	1–5	1–5	1–5

SEC: Sensitivity to emotional contagion, SD: Standard deviation, ** $p < 0.01$

The nurses' reported level of sensitivity to emotional contagion was moderate, physical health was poor, mental health was very poor, and work performance was high. The mean of quality of nursing care rated by the patients was 5.04 (SD = 0.82) (min 1, max 6) (see Table 4).

Table 4
Sensitivity to emotional contagion, nurse and patient outcomes by units (N_{units} =21).

Variables	1	2	3	4	5
SEC	1				
Physical health	-0.033	1			
Mental health	-0.121**	0.153**	1		
Work performance	0.107	0.012	0.064	1	
Quality of care	0.079	-0.097	-0.037	0.033	1
Mean	3.32	42.48	26.68	4.09	5.04
SD	0.68	10.86	14.46	0.84	0.82
Median	3.8	58.39	75.93	4	5
Min-Max	1.2-5	11.85–70.25	11.99–63.94	1–5	1–6
Score range	1–5	0-100	0-100	1–5	1–6

SEC: Sensitivity to emotional contagion, SD: Standard deviation, ** $p < 0.01$

3.3 Relationships between sensitivity to emotional contagion and physical health, mental health, job performance, and quality of nursing care

A very weak significant negative correlation was found between sensitivity to emotional contagion and mental health ($r= -0.163$, $p < 0.01$). This confirmed hypothesis H1b. However, no significant correlation was found between physical health and workplace performance ($p > 0.05$). H1a and H1c were not substantiated. A very weak positive significant correlation was found between nurses' physical and mental health ($r = 0.146$, $p < 0.01$). Thus, H2a and H3a were substantiated. However, no significant correlation was found between nurses' physical health, job performance, and quality of care ($p > 0.05$). H2b and H2c were not substantiated. No significant correlation was found between nurses' mental health, job performance, and quality of care (see Table 3). H3b and H3c were not substantiated. In addition, correlations between sensitivity to contagion for positive and negative emotions and other variables were tested. A very weak negative correlation was found between sensitivity to contagion for negative emotions and mental health ($r= -0.211$, $p < 0.01$).

A very weak negative correlation was found between sensitivity to emotional contagion and mental health ($r= -0.121$, $p < 0.05$) and a very weak positive correlation between physical health and mental health ($r = 0.153$, $p < 0.01$; Table 4) regarding the relationship between sensitivity to emotional contagion and nurse and patient outcomes at the unit level. H1b and H2a were also substantiated at the unit level. There was no significant correlation between the nurses' sensitivity to emotional contagion and the quality of care perceived by the patients, examined as physical health, job performance, and patient

outcome (p > 0.05) (Table 4). Thus, H1a, H1c, and H1d were not substantiated. There was no significant correlation between nurses' job performance and quality of care perceived by the patients examined as a patient outcome (p > 0.05) (Table 4). H4 was not substantiated.

The hypotheses for determining the statistical effect of sensitivity to emotional contagion on physical and mental health were also tested using regression analysis (Table 5). Sensitivity to emotional contagion had a statistically significant negative impact on nurses' mental health (p < 0.01). Thus, H1b was confirmed by the regression analysis. Mental health had a statistically significant positive effect on nurses' physical health (p < 0.01). H2a was also substantiated by the regression analysis (Table 5).

Table 5
Direct effect of sensitivity to emotional contagion on physical and mental health (N = 357).

Dependent variables	Independent variables	β	p	95% CI (Lower-Upper bound)	Model	DurbinWatson
Mental health	Constant	38.114	< 0.001**	31,029, 45,598	R^2 = 0.27	1.680
	Sensitivity to emotional contagion	-3.398	0.002**	-5.546, -1.250	F = 9.679	
Physical health	Constant	39.806	< 0.001**	37.409,42.203	R^2 = 0.21	1.560
	Mental health	0.110	0.006**	0.032, 0.189	F = 7.713	
Linear regression analysis, **p < 0.01, CI: Confidence interval						

As there was no statistically significant relationship between sensitivity to emotional contagion and job performance and quality of care, an indirect effect analysis for physical and mental health was not possible. Thus, H5 and H6 were not substantiated.

4 DISCUSSION

To our knowledge, this is the first study to simultaneously examine the effects of sensitivity to emotional contagion on individual (physical and mental health) and organizational (job performance and quality of nursing care) outcomes. The findings showed that sensitivity to emotional contagion was moderate among nurses. The nurses indicated that their physical health was poor and their mental health was very poor. However, the nurses' job performance and the quality of care perceived by the patients were found to be high. Sensitivity to emotional contagion was negatively related to nurses' mental health, while mental health was positively related to physical health. Regression analysis also shows that sensitivity to emotional contagion negatively affected nurses' mental health. Contrary to expectations, sensitivity to

emotional contagion was not associated with nurses' physical health, job performance, and patients' perceived quality of care.

Study found that sensitivity to emotional contagion was moderately pronounced. Previous studies investigating sensitivity to emotional contagion in physicians, nurses, and patients [13], and in nurses [14], Petitta et al. (2016) found that nurses are sensitive to emotions of joy and anger from their managers, colleagues, and patients [13]. Totterdell et al. (1998) found that the daily mood of nurses is sensitive and similar to the collective mood of other teammates [50]. The results of the study are consistent with existing studies on this topic.

Sensitivity to emotional contagion in the work environment has been found to have a negative impact on nurses' mental health. This could be due to the fact that nurses are more sensitive to negative emotions. Previous studies have reported that negative emotions elicit faster and stronger emotional, behavioral, and cognitive responses than neutral or positive emotions [51]. In addition, employees with a high sensitivity to emotional contagion have a higher risk of reduced well-being [52].

When evaluated at the unit level, it was found that nurses' sensitivity to emotional contagion was not associated with physical health, job performance, or perceived quality of patient care. This result is inconsistent with previous research findings. Earlier literature [35, 37–38] indicates that sensitivity to emotional contagion affects performance. Negative stress affects physical and mental health and, consequently, job performance [34]. Gurkova et al. (2011) found that nurses' personal emotions influence their job performance [31]. Emotional exhaustion reduces the ability to provide quality care [29]. Emotional weakness in nurses [26] and anxiety and tension in healthcare workers [17] have been found to negatively affect the quality of care.

The discrepancy between this study's results and those of preceding studies may be attributable to nurses' varied perceptions of performance. Nurse performance may be impacted by a number of factors, including emotional contagion and health concerns. However, if nurses perceive high performance as a responsibility demanded by the profession or a conscientious obligation, these factors may not negatively influence their performance. Ellershaw et al. (2015) reported that conscientiousness is strongly related to all performance indicators and that conscientiousness may be an important requirement in nursing [53]. Furthermore, successful performance in nursing is characterized by nurses' high commitment to their work and rigorous performance [54]. This may also be due to nurses' perceiving their work as meaningful. If nurses perceive their work as meaningful, they will improve their own performance, because they believe that their efforts will benefit patients. In fact, a positive relationship was found between nurses' perceptions of meaningful work and their performance [2]. Another reason for this difference could be the presence of factors such as a positive work environment, supportive leadership, social support, and appropriate use of resources, apart from the nurses' own physical and mental health. A conducive work environment not only helps nurses cope with stress but also enables them to improve their performance [55]. Despite the shortage of nurses, materials, equipment, and financial resources, supportive leadership is reported to improve nurses' performance

[56]. Blanco-Donoso et al. (2023) reported that nursing home employees, despite encountering elevated work demands, scarce resources, frequent exposure to patients in critical condition or experiencing distress, and profound emotional fatigue, exhibit an augmentation in their professional and job fulfillment through the acquisition of social support within the work environment [4].

This phenomenon can also be explained by the literature that emphasizes the positive role of negative affect in motivation. In the study conducted by He (2023), the hypothesis was proposed that individuals experiencing a depressed mood may be driven to allocate more effort toward their tasks with the objective of attaining predetermined objectives [57]. Negative moods are associated with increased effort on serious tasks that are perceived as rewarding and an increased focus on meeting performance standards [58]. Therefore, negative affect can in some cases increase persistence and decrease the self-sabotaging behavior [59]. Negative mood is associated with an increased belief in the value of a task [59]. Forgas (2013) found that people in a negative mood make fewer judgment errors, are more motivated, and are more sensitive to social events [58]. In a study in which happy and sad participants were given a challenging task, participants in a negative mood spent more time on the task, showed more patience, asked more questions, and provided a greater number of accurate responses.

4.1 Strengths and limitations

The study benefits from being adequately powered within a robust research design and a diverse sample. However, study had certain limitations. The measurement of variables based on nurses' self-reports may have led to a bias in the results. Future studies should use data from other sources to corroborate these findings. Future studies should also use objective indicators of working conditions (e.g., administrative staff data) and nursing care outcomes (e.g., medication errors, falls, infections, and pressure ulcers) to measure nurses’ job performance and the quality of nursing care. Another limitation is that the study sample consisted only of nurses working in public hospitals and inpatient units. Future studies should also include nurses working in private hospitals and non-inpatient units. The relationships between variables were examined using a cross-sectional design, which prohibits causal conclusions. Another limitation of this study is the possibility that the ongoing COVID-19 pandemic during the data collection period may have had an extraordinary impact on the nurses’ physical and mental health status during the period of data collection.

5 CONCLUSION

The present study offers substantiation of the associations between sensitivity to emotional contagion, physical health, mental health (individual outcomes), job performance, and quality of nursing care (organizational outcomes) in nurses. It was found that sensitivity to emotional contagion negatively affected mental health in nurses. However, sensitivity to emotional contagion was not associated with nurses' physical health, job performance, or patient-perceived quality of care. Nurses may be exposed to high emotional demands from their patients, families, and colleagues, which greatly affects their well-being and health. The main practical result of the study is that it is important to create appropriate

working conditions that increase resilience to emotional contagion in order to prevent nurses' mental health from being negatively affected. The results showed that despite sensitivity to emotional contagion and poor mental health, nurses' reported job performance and patients' perceived quality of care were high. These study results show that changes in nurses' emotions and physical and mental health status are not reflected in their performance and the quality of care. However, these results only refer to a cross-sectional period, and if the period is extended, the results may be different. Organizing trainings for nurses on emotional literacy, awareness, and self-compassion may be useful to reduce physical and emotional stress. Health screening and occupational health and safety measures should be implemented in health institutions to monitor and assess the physical and mental health of nurses, and legal regulations on this issue should be implemented as soon as possible. It is recommended to re-examine nurses' sensitivity to emotional contagion after the COVID-19 pandemic and compare it with the results of this study.

5.1 Relevance to Clinical Practice

Practices in hospitals that focus on nurses' well-being are institutionally supportive, and improving their ability to manage their emotions and create their own personal potential for support can lead to positive organizational outcomes such as quality patient care. In a supportive environment, staff are more likely to maintain a high level of performance. Nurse managers have a great responsibility in this regard.

Abbreviations

SEC
Sensitivity to emotional contagion
SD
Standard deviation
CI
Confidence interval

Declarations

Ethics approval and consent to participate

Ethical approval for this study was obtained from the Social Sciences and Humanities Research Ethics Committee of Istanbul University-Cerrahpaşa (approval date: 04/09/2020, approval number: 52832). Online informed consent was obtained from the participants, and permission to use the Turkish versions of the scales was granted by the researchers who adapted them. The study was conducted in accordance with the principles of the Declaration of Helsinki. This study was not registered as a clinical trial; therefore, a clinical trial number is not applicable.

Clinical trial number

Not applicable.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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Author Contribution

Study design: FD BSData collection: FDData analyisis: FD, BSStudy supervision: FD, BSManuscript writing: FD, BSCritical revision for important intellectual content: FD, BSCorresponding Author: FD

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Data Availability

All data generated or analyzed during this study are included in this published article.The dataset generated and analyzed during the current study are available from the corresponding authors on reasonable request.

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Figures

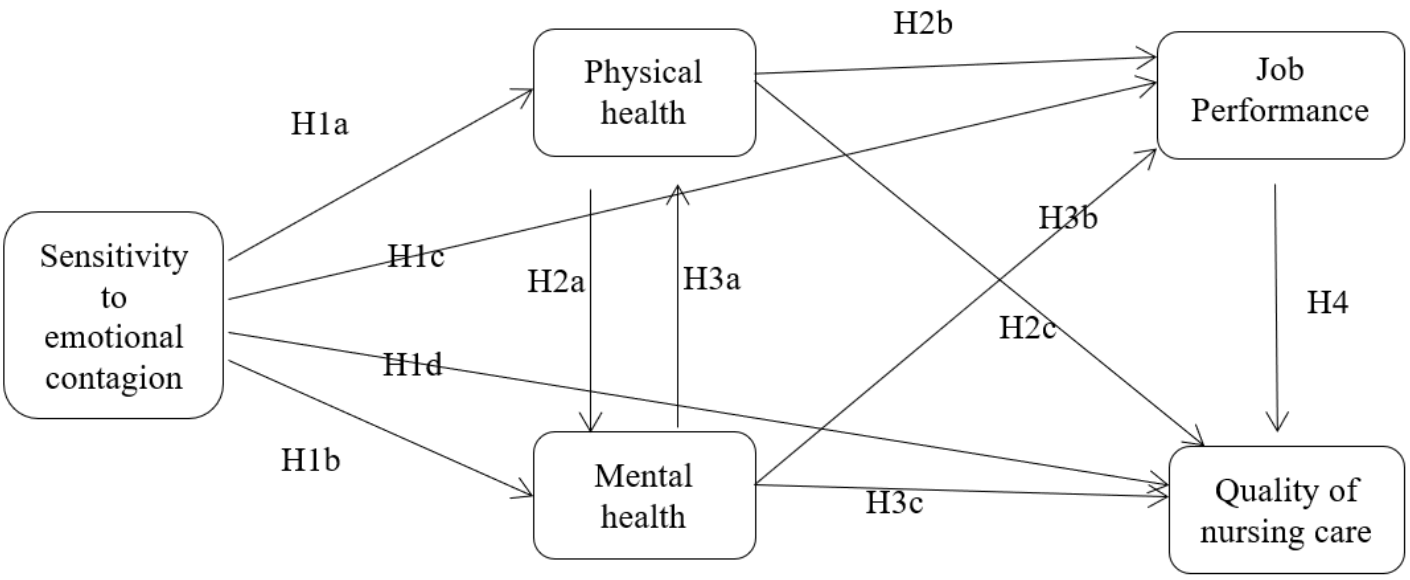


Figure 1

Hypothesis model of the study.