

ANALYSIS OF THE RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND STRESS CAUSED BY THE ORGANISATION: A STUDY OF NURSES

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Abstract

Emotional intelligence is one of the biggest factors that contributes to the success of individuals who assume various tasks and roles in modern life. It is also important in determining how individuals cope with the stress that can potentially limit their emotional relationships, decrease their efficiency, and reduce the pleasure of life. The main purposes of this study were to consider the concepts of emotional intelligence and stress, and to conduct an applied study of the relationship between these two variables. The nurses who worked at some of the private and governmental hospitals in the province of Ankara were studied, and this present study identified a significant relationship between emotional intelligence and stress. **Key words:** Emotional Intelligence, Job Stress, Nursing, Turkey.

The 21st century is a time of globalisation, information revolution, and speed (Cascio, 2001). The most important effects of these can be seen in the business world, and they can manifest themselves as changes that organisations make in their structures, strategies, activities, and technologies (Langley, 2000). Constantly changing organisations impose new roles and duties on their employees, and the employees who want to handle new roles and duties need to have a

good intelligence quotient (IQ) and a good emotional quotient (EQ) in the processes of decision making and problem solving.

The 21st century is also an era of stress. Individuals face stress in their organisational and daily lives. Although society has a set of legal regulations to help individuals live in a healthy manner, these regulations do not eliminate stress. Thus, a completely stress-free life is impossible,

and stress becomes a characteristic of human existence. Individuals have used various methods to handle stress, including using their intelligence, especially their emotional intelligence (Sirin, 2007). Several studies have suggested that individuals with high emotional intelligence are more capable of understanding and managing their emotions, which allows them to adjust to their surroundings and become more tolerant to challenging conditions, including stress (Bar-On, 1997; Goleman, 2005; Matthews *et al.*, 2006). Because stress is a perceived concept, emotional intelligence plays a role in the mental process of determining the source of the stress (Ucar, 2004).

The referred stress-intelligence relationship was discussed reciprocally in this study. The results obtained in the present study affirmed a negative relationship between emotional mental ability and the stress level. Studies have proposed that a certain portion of mental capacity is allocated to cope with stress, which could explain why a greater stress level reduces mental capacity (Baltas and Baltas, 2008).

Emotional Intelligence and Stress Concepts

Studies focusing on intelligence have increasingly begun to include the concept of emotion (Abaci, 2002). One reason for this trend is that researchers have observed that there was not a good correlation between the lifetime achievements of individuals with a high IQ, which is considered to be indicative of classical problem-solving ability, and their actual intelligence (Cumming, 2005). Indeed, researchers have proposed that both rational and emotional factors contribute to problem-solving ability, and emotional intelligence has recently been investigated in more detail. Some studies have suggested that emotional intelligence has different, even opposite, features from intellectual intelligence (Halicinarli and Bender, 2006; Stein and Book, 2003), whereas other studies have suggested that emotional intelligence may be the most sophisticated aspect of intelligence (Shapiro, 2004). Studies that support the idea that emotional intelligence is superior to intellectual intelligence have argued that the ability to think in the context of emotional intelligence is limited to rationality, such that cognitive resources (desire, motivation, and emotion) also need to be used as inputs in problem solving (Erdogdu, 2008; Yesilyaprak, 1990).

There are several different definitions of emotional intelligence, but emotional intelligence can be defined simply as the rational use of emotions (Weissinger, 1998).

The foundations of the emotional intelligence are based on Thorndike's social intelligence concept, which is defined as the ability to understand and manage individuals based on their social behaviours (Dogan and Demiral, 2007). In contrast, the phrase *emotional intelligence* was first used by Payne (1985) and was considered to be the person's ability to relate to fear, pain and desire. One of the prominent definitions of emotional intelligence belongs to Salovey and Mayer (1990); and this definition is related to their *Four Branch Model*. According to these two scholars, emotional intelligence is a type of social intelligence that includes both the ability to analyse a person's own and others' emotions and the ability to exploit these analyses to guide one's own and others' actions. The "four branches" include four factors that form emotional intelligence (Salovey and Mayer, 1990): the use of emotions, perceiving emotions, emotional management and social fitness.

Gardner has also been an important figure in the scientific research of intelligence and the scholar proposed that there is more than one type of intelligence and that individuals could have several types of intelligence at the same time (Gardner, 2004). Gardner treated social intelligence as one type of intelligence, and this intelligence depended on both intrapersonal and interpersonal communication.

Unlike Gardner, Goleman (2005) focused on emotional intelligence solely and considered it to be an individual's analysis of own emotions, an understanding of others' emotions, and the use of these analyses and understandings to enrich one's personal life. Goleman (1995) also expanded the Four Branch Model to include five emotional factors: managing one's own emotional conditions; understanding and influencing other people's emotions; identifying and distinguishing among one's own emotional conditions; forming and sustaining successful social relationships; and using one's current emotional state purposefully to attain specific goals.

Other than the definitions put forward by these scholars, there are many other definitions as well. For example, Martinez (1997) asserts that emotional intelligence is the ability to use accurate reasoning about one's own and others' emotions as well as the ability to facilitate this reasoning to enrich thinking and deciding. Chapman (2001) defines emotional intelligence by taking work environment into account: the workers' accepting corporate values, having good feelings about themselves and others, and having the passion to sell the products.

The measurement of emotional intelligence is also a matter in the literature. A prominent instrument belongs to Mayer *et al.* (2002), who used the "four branch" model

to form the *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT)*. Another prominent instrument was formed by Bar-On (1997) and named as the *Emotional Quotient Inventory (EQ-i)*, based on the assumption that emotional intelligence is actually a group of non-cognitive capabilities and competencies. It is also interesting to see that some instruments do not take emotional intelligence as a whole, but instead they try to measure only a specific factor or part of emotional intelligence. Some examples include the *Diagnostic Analysis of Nonverbal Accuracy Scale (DANVA)* (Nowicki and Duke, 1994), the *Japanese and Caucasian Brief Effect Recognition Test (JACBART)* (Matsumoto *et al.*, 2000), the *Emotional Stroop Test* developed by Richards *et al.* (1992), and the *Levels of Emotional Awareness Scale (LEAS)* (Lane *et al.*, 1990).

In addition to emotional intelligence, the present study also focused on stress. Competition, change, and hardship are widespread in today's world, and it is common for individuals to fall into stress that is hard to overcome. Stress is a concept that has been known for centuries, but only recently has it begun to be handled scientifically, and the concept of stress requires interdisciplinary studies (Ozbay and Senyuz, 1998).

The word "stress" comes from the Latin verb "estrica" and although the initial meanings of stress included misery, sorrow, and pain, in the 18th and 19th centuries, stress began to have meanings such as to pressure and to apply force (Guney, 2000). Being interdisciplinary, stress is used in many branches of science (Agma, 2007; Graham, 2002; Stora, 1992), and its widespread use has led to many definitions. For example, Selye (1985) identified stress from a physiological and psychological standpoint as the body's reaction against any nonspecific demand loaded onto it. Similar to Selye, Cuceoglu (1999) considered stress to be both physiological and psychological, and identified stress as an individual's struggle beyond own physical and psychological limits as a result of uncomfortable conditions coming from the environment. Schermerhorn (1989) described stress as the tension experienced by an individual when he/she encountered unusual demands, limitations, or occasions. According to another definition, stress is a situation involving tension, and it depends on factors such as inhibition, conflict, undergoing change, and unique personal elements (Rogers, 2007).

Referring to definitions of stress, it can be inferred that it is not always correct to handle the stress concept negatively. Because the human body is not able to distinguish between pleasant and unpleasant effects, the body's stress reaction is the same against both positive and negative effects (Allen,

1983). Interestingly, research has suggested that individuals must maintain a certain level of stress to remain efficient and productive (Sahin, 2010).

Emotional Intelligence and Stress in Nursing

According to the International Council of Nurses' definition, nursing is a profession that is aimed at protecting, improving, and rehabilitating the health of the individual, the family, and society (Boyatzis and Oosten, 2002). Because the focus of nursing is people, emotions are as important as technical information (Boyatzis and Oosten, 2002; Cowin, 2001). Similar to other people-oriented professions, nurses should respect patients' preferences and choices and fulfil patients' emotional, social, and moral needs (Journal of Nursing, 2007). Indeed, it is vital for nurses to be emotionally aware, to manage their emotions, to have empathy, and to communicate effectively (McQueen, 2004).

Many studies have expressed and/or set forth the positive effects of emotional intelligence on topics such as job satisfaction and job performance (Ayranci, 2011; Dulewicz and Higgs, 2000; Hayward, 2005; Higgs, 2004), and the positive effects of emotional intelligence have also been observed in the nursing profession. Indeed, emotional intelligence positively affects nurses and increases both job satisfaction and the ability to deal with stress (Akerjordet and Severinson, 2008; Montes-Berges and Augusto, 2007).

Nursing is a very stressful profession because the job is focused on patients' well-being. In addition, nurses are expected to perform their work accurately and in a timely manner, and there is no room for mistakes. Moreover, nurses must take into account both the patient and the patient's relatives (Akyar, 2009). Some of the primary causes of stress for nurses include directly dealing with pain and death, being obliged to respond to the emotional needs of patients and their relatives, long shifts, the idea that there is a huge burden of responsibility in the work environment, and physical fatigue (Landa and Lopez-Zafra, 2010).

Methods

Purpose and Importance of the Study

The purpose of this study was to investigate the relationship between the emotional intelligence of nurses and their stress caused by working in a hospital. This study is particularly relevant because the relationship

between stress and emotional intelligence is a relatively current concept, and not many studies have examined this relationship in the nursing profession. Our study subjects were nurses from Turkish hospitals, and examining the relationship between stress and emotional intelligence in the nursing profession, which is a people-oriented profession that requires sensitivity from its practitioners, highlights the importance of this study with respect to both the Turkish and the international literature.

Hypotheses of the Study

A number of inferences from previous studies regarding the concepts of stress and emotional intelligence contributed to the hypotheses of the present study.

Hypothesis 1: There is a significant relationship between the emotional intelligence of the participating nurses and the stress caused by working in a hospital.

A study by Gohm et al. (2005) investigated how one's stress level changes in relation to emotional intelligence. Based on this study, we decided to analyse the relationship between the stress groups and emotional intelligence, and we formed the following hypotheses:

Hypothesis 2: The relationships between the emotional intelligence of participating nurses and their stress levels will show differences.

- Hypothesis 2a: There is a significant relationship between the emotional intelligence of participating nurses and the high-stress-level group.
- Hypothesis 2b: There is a significant relationship between the emotional intelligence of the participating nurses and the medium-stress-level group.
- Hypothesis 2c: There is a significant relationship between the emotional intelligence of the participating nurses and the low-stress-level group.

Research Population and Sample

The research population was composed of nurses who worked in a number of private and government hospitals in Ankara. According to the information given by the Ministry of Health, the total number of actively working nurses in Ankara at the time the study was conducted was 10,790. The number of nurses in the hospitals where the study

was conducted was 2,070. The study sample consisted of 333 nurses from hospitals in Ankara, and the sample was statistically large enough to represent the research population within the criteria introduced by Saunders et al. (2009).

The study sample was chosen randomly in an unbiased manner from nurses at ten different health institutions. Four of the health institutions were public institutions, and the other six institutions were private. We distributed 448 questionnaires, and assumed that some participants would not respond and that some questionnaires would have missing information or erroneous answers. There were 345 returned questionnaires, but the number of questionnaires that were completed fully was 333.

Data Collection Tools

The emotional intelligence levels were measured with the Emotional Intelligence Scale, and the Job-Induced Stress Scale was used to determine the stress status of the participants. The Emotional Intelligence Scale, which was a seven-point Likert-type scale, was developed by Wong and Law (2002), and this scale with 16 items contained a total of four factors, namely self emotion appraisal, others emotion appraisal, use of emotions and regulation of emotion. Importantly, Guleryuz et al. (2008) used the Emotional Intelligence Scale in a study in Turkey and showed that the scale did not have any problems in terms of validity and reliability. The Job-Induced Stress Scale, developed by Bayram (2006), consisted of 30 items assessed by a seven-point Likert-type scale. An important feature of this scale is that it is *reversed*, and therefore the higher points on this scale imply lower levels of work stress. To make the questions easier to answer, we converted both scales into a five-point Likert-type scale.

Data Collection and Evaluation Method

A data collection form was prepared, which included the introduction page that had the application guidelines and the requested demographic information. The Emotional Intelligence Scale was included before the Job-Induced Stress Scale.

To determine the basic or the interaction effects of the variables, the reliability analysis of the scales was performed with t tests and one-way analysis of variance (ANOVA). We also performed simple linear regression analyses to determine the relationships amongst the variables.

Participants' Demographic Characteristics and the Reliability and Statistical Structures of the Data

The vast majority of the participating nurses (92%) were women, and more than half of the nurses (50.2%) were married. Approximately 54% of the nurses in the present study worked in the public sector, and 65% of the nurses were between the ages of 26 and 40. In addition, 24.6% of the nurses in the present study were younger than 25 years of age. A very large group of the participants (82.3%) had a university degree, 12% had graduated from high school, and the rest (5.7%) had postgraduate education. Interestingly, 51.1% of the employees had worked at their current job for a period of five or fewer years, 25.8% had been in their current workplace for six to nine years, and 23.1% had worked in the same workplace for ten years or more. Approximately half of the participants (45%) had a monthly income between 700 and 1,500 Turkish Liras (TL; \$356-805), 50.8% had an income between 1,501 and 3,000 TL (\$806-1,611), and 4.2% had an income of at least 3,001 TL (\$1,611).

The reliability analysis of the data was performed using Cronbach's alpha coefficient. At the end of the analysis, the entry in the questionnaire that read, "I am given very high responsibilities, in general I am responsible to a single supervisor only", was determined to impair the reliability value, and this entry was removed from the current and future analyses. When the entry was removed, the Cronbach's alpha (α) coefficient was 0.922.

As mentioned earlier, the statistical structure of the Emotional Intelligence Scale is known and a previous study on a Turkish sample showed that there were no problems in terms of the validity and the reliability of this scale. The statistical structure of the Job-Induced Stress Scale developed by Bayram (2006), however, was unknown. All of the data that exhibited normal distribution were analysed, and exploratory factor analysis was applied to the Job-Induced Stress Scale data. According to the results of the analysis, the scale consisted of a total of seven factors; and these factors are *authority, norms and rules, performance and promotion system, work load, work environment, work guarantee, and work satisfaction*.

It is worth noting again that this work stress scale is reversed. When these factors are analysed, it is seen that the highest level of stress is caused by the *performance and promotion system* (average: 2.7772), whereas the lowest level of stress is caused by *work satisfaction* (average: 3.7072) and *norms and rules* afterwards (average: 3.2910).

Participants' Emotional Intelligence and Demographic Properties

To analyse the relationships of the participants' demographic characteristics with their emotional intelligence and stress, one-way ANOVAs were performed along with independent sample t tests. In interpreting the results, the arithmetic mean and significance values were taken into account. A value of $p < 0.05$ was considered significant.

According to Table 1, although participants' emotional intelligence levels show differences according to their marital status [$t(331)=2.541$; $p < 0.05$], emotional intelligence levels do not vary according to participants' genders [$t(331)=0.826$; $p > 0.05$] and their sectors [$t(331)=0.072$; $p > 0.05$]. Compared to single individuals, married people appear to be in a better position in terms of emotional intelligence, which is reasonable given that marriage is considered to be an institution that involves understanding emotions, empathy, and social cohesion concepts in the context of emotional intelligence (Uncu, 2007). Indeed, people who have managed to build a functioning marriage are expected to be superior in terms of emotional intelligence.

Table 1. Participants' Emotional Intelligence and their Genders, Marital Status and Sectors

Gender	N	\bar{X}	S	df	t	p
Female	306	62.66	6.23	331	.826	.409
Male	27	61.47	7.00			
Marital Status	N	\bar{X}	S	df	t	p
Married	167	62.52	6.72	331	2.541	.011
Single	166	60.60	7.04			
Sector	N	\bar{X}	S	df	t	p
Public	178	61.54	6.17	331	.072	.943
Private	155	61.60	7.75			

Table 2 considers participants' ages. The table points out that the emotional intelligence of the participants varies significantly according to their ages [$F(2,330)=3.595$; $p < 0.05$]. According to the Scheffé analysis performed, there are statistically significant differences amongst people 25 and under ($\bar{X}=60.01$), between 26 and 40 ($\bar{X}=61.85$) and between 41 and 55 ($\bar{X}=63.45$). In this case, Table 2 shows that emotional intelligence increases with increasing age. There was a significant relationship between the ages of

the participants and their emotional intelligence, which was in agreement with previous studies that have shown a relationship between age and emotional intelligence (Bar-On et al., 2000; Derksen et al., 2002). Although the rate of development of emotional intelligence changes with age, emotional intelligence continues to develop throughout an individual's entire lifetime (Ersanli, 2003). Interestingly, studies have shown that emotional intelligence begins to reach its peak in a person's late 40s (Stein and Book, 2003).

Table 2. The Relationship Between Age and Emotional Intelligence

Age	N	\bar{X}	SS		
25 and less	82	60.01	6.76		
Between 26-40	216	61.85	6.46		
Between 41-55	35	63.45	9.35		
Source of Variance	Sum of Squares	df	Mean Square	F	p
Between groups	341.367	2	170.69	3.595	.029
Within groups	15668.22	330	47.47		
Total	16009.59	332			

The education level of the participants is another factor considered in Table 3. The emotional intelligence of the participants varies significantly according to their education levels, and the participants with a master's and / or Ph.D. degree have higher levels of emotional intelligence (\bar{X} =71.89) than the participants who graduated from university (\bar{X} =60.76) or from high school (\bar{X} =62.17). We observed that the emotional intelligence of the participants was positively correlated with their educational level. Roitman (1999) asserted that 50% of emotional intelligence skills are inborn, but that everyone can learn emotional intelligence skills. The finding that emotional intelligence skills can be learned and improved supports our finding that emotional intelligence was positively correlated with educational level.

Table 3. The Relationship Between Education Level and Emotional Intelligence

Education Level	N	\bar{X}	SS
High School	40	62.17	6.21
University	274	60.76	6.61

Master's and / or Ph.D. level	19	71.89	4.34		
Source of Variance	Sum of Squares	df	Mean Square	F	P
Between groups	2216.97	2	1108.488	26.522	.000
Within groups	13792.61	330	41.796		
Total	16009.92	332			

Table 4 indicates that the emotional intelligence of the nurses varies according to their time spent working in the same workplace. Moreover, emotional intelligence levels increase with increasing working time, with an average of 60.46 for those working five or fewer years, 62.23 for those working between six to nine years and 63.27 for those working ten years or more. The present study also found that the nurses who had worked longer in the same workplace were in a better position in terms of emotional intelligence. Being in constant interaction with the same people in the same environment for a long time may result in emotionally advanced thoughts, feelings, and behaviours.

Table 4. The Relationship Between the Time Worked in the Same Workplace and Emotional Intelligence

Working Time in the same workplace	N	\bar{X}	SS		
5 years and less	170	60.46	7.11		
Between 6-9 years	86	62.23	6.56		
10 years or more	77	63.27	6.61		
Source of Variance	Sum of Squares	df	Mean Square	F	P
Between groups	468.682	2	234.341	4.976	.007
Within groups	15540.91	330	47.094		
Total	16009.59	332			

According to the analysis in Table 5, the participants' emotional intelligence levels do not vary according to their wages [F(2,330)= 2.716; p>0.05].

Table 5. The Relationship Between Wages and Emotional Intelligence

Wages	N	\bar{X}	SS
700-1500 TL	150	60.66	6.60
1501-3000 TL	169	62.18	7.29
3001 TL and more	14	63.85	4.88

Source of Variance	Sum of Squares	df	Mean Square	F	p
Between groups	259.23	2	129.615	2.716	.068
Within groups	15750.36	330	47.728		
Total	16009.59	332			

Participants' Job Stress Levels and Their Demographic Properties

Just as in the case with the emotional intelligence, unrelated samples t-tests and one-way variance analyses were used to assess the relationships between the nurses' job stress levels and their demographic properties (at 0.05 level). According to Table 6, job stress levels do not show any differences according to participants' genders [$t(331)=0.238$; $p>0.05$] and marital status [$t(331)=0.06$; $p>0.05$], however, stress levels do vary according to the sector of the participants [$t(331)=3.577$; $p<0.05$]. It is also noteworthy that the nurses in the private sector have less stress ($\bar{X}=93.52$) than the ones in the public sector ($\bar{X}=86.81$), as one should recall that the Job-Induced Stress Scale is inverted.

Table 6. Participants' Job Stress Levels and Their Genders, Marital Status and Sectors

Gender	N	\bar{X}	S	df	t	p
Female	306	90.70	16.35	331	.238	.812
Male	27	89.87	17.49			
Marital Status	N	\bar{X}	S	df	t	p
Married	167	90.00	16.93	331	.06	.945
Single	166	89.87	17.88			
Sector	N	\bar{X}	S	df	t	p
Public	178	86.81	16.05	331	3.577	.000
Private	155	93.52	18.19			

Table 7 points out that although average job stress levels are different at different age levels, there is no statistically significant relationship between age and stress levels.

Table 7. The Relationship Between Age and Job Stress Levels

Age	N	\bar{X}	SS
25 and less	82	91.29	16.20
Between 26-40	216	89.63	17.37
Between 41-55	35	88.65	20.26

Source of Variance	Sum of Squares	df	Mean Square	F	p
Between groups	227.83	2	113.915	.375	.687
Within groups	100142.9	330	303.464		
Total	100370.7	332			

The nurses' job stress levels show differences according to their education levels (Table 8) and the group experiencing the highest stress level is the one that includes university graduates ($\bar{X}=88.70$). Interestingly, we observed a decrease in the stress level with a further increase in the educational level, which supports previous studies in the literature (Cakir, 2009). When higher education is especially considered, individuals with a lower educational level commonly have a low level or absence of job security, which is a stress-inducing factor (Digin and Unsar, 2010). In contrast, individuals with a higher educational level feel better about themselves because they are needed at work, and finding an alternative to replace them can be difficult.

Table 8. The Relationship Between Education Level and Job Stress Level

Education Level	N	\bar{X}	SS		
High School	40	92.42	16.20		
University	274	88.70	17.15		
Master's and / or Ph.D. level	19	102.52	18.45		
Source of Variance	Sum of Squares	df	Mean Square	F	p
Between groups	3675.23	2	1837.616	6.721	.002
Within groups	96695.56	330	293.017		
Total	100370.7	332			

The nurses' job stress levels do not change according to their different working times in the same workplace (Table 9).

Table 9. The Relationship Between the Time Worked in the Same Workplace and Job Stress Levels

Working Time in the same workplace	N	\bar{X}	SS
5 years and less	170	90.41	17.63
Between 6-9 years	86	88.96	17.54
10 years or more	77	89.93	16.84

Source of Variance	Sum of Squares	df	Mean Square	F	p
Between groups	119.74	2	59.87	.197	.821
Within groups	100251.1	330	303.791		
Total	100370.7	332			

Finally, Table 10 shows that the nurses' job stress levels present differences according to their wages [F(2,330)=6.135; p<0.05], and it is clear that increasing wages are related to decreasing job stress. Wages significantly affect an individual's perception of how much value is given to his/her work, and inadequacy in wages becomes an important stress-inducing factor (Tutar, 2007). Furthermore, wages affect an individual's perception of organisational justice because a person who thinks that there is a just distribution of wages is not exposed to wage-related job stress (Aydin, 2004).

Table 10. The Relationship Between Wages and Job Stress Levels

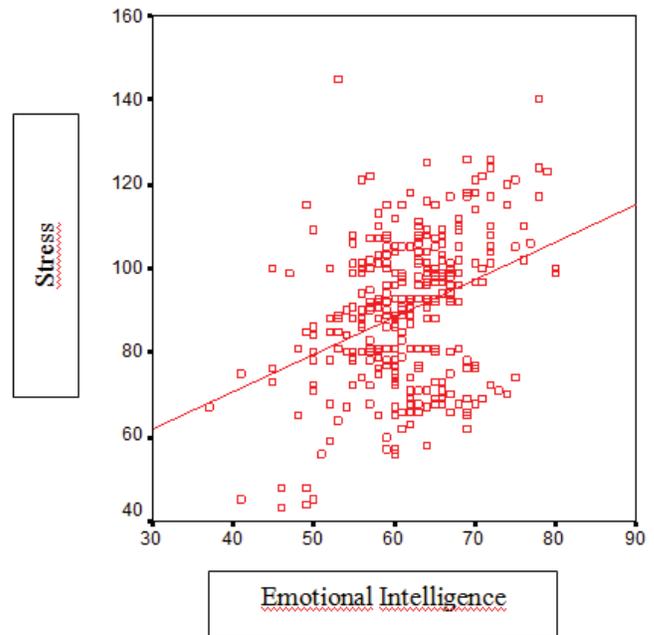
Wages	N	\bar{X}	SS
700-1500 TL	150	88.18	18.11
1501-3000 TL	169	90.26	16.60
3001 TL and more	14	104.85	10.93

Source of Variance	Sum of Squares	df	Mean Square	F	p
Between groups	3597.92	2	1798.963	6.135	.002
Within groups	96772.87	330	293.251		
Total	100370.7	332			

Hypothesis Testing

We performed a correlation analysis between emotional intelligence and stress, which revealed a moderate (the correlation coefficient was 0.355) but significant (p<0.05) positive correlation. Before performing a regression analysis, we determined whether the data were appropriate to be used for the regression technique. The sample size was larger than 30, and the data exhibited a normal distribution. To analyse the linearity of the data, a scatter diagram was prepared between the variables of emotional intelligence and stress. According to the scatter diagram, generally speaking, there was a linear relationship between the stress and emotional intelligence variables (Figure 1).

Figure 1. The Scatter Plot Between Job Stress and Emotional Intelligence Variables



Thus, we performed a regression analysis to examine statistically the relationship between emotional intelligence and stress, and the results can be seen in Table 11.

Table 11. The Regression Analysis About Emotional Intelligence and Stress

	R	R ²	ΔR^2	F	β	p
Model	0.355	0.126	0.123	47.682		
Fixed					35.235	0.000*
Emotional Intelligence					0.888	0.000*

*p<0.05

According to the analysis shown in Table 11, emotional intelligence is a meaningful predictor of stress. Furthermore, emotional intelligence can explain the variance of stress by 12.6% (R²=0.126). More precisely, 12.6% of the stress of the participating nurses was based on their emotional intelligence.

According to Table 11, there is a linear relationship between emotional intelligence and stress, and this relationship is statistically significant [F(1,331)=47.682; p<0.05]. A significant relationship became apparent

between the emotional intelligence of the participating nurses and the stress caused by the hospitals where they worked; thus, the first hypothesis (*There is a significant relationship between the emotional intelligence of the participating nurses and the stress caused by working in a hospital*) was accepted.

We also evaluated stress in more detail by dividing it into three levels. To determine the distribution with respect to stress levels, we calculated the total scores of the participants' responses to the scales, and the arithmetic mean and standard deviation were calculated from the total scores. All of the calculations were rounded to the first digit after the decimal point. We considered a standard deviation of 0.5 above and below the mean to form the medium-stress-level group (the medium-stress-level group covered scores ranging from 81-99). The high-stress-level group consisted of participants whose scores ranged from 43, which was the minimum score, to 80, and the low-stress-level group consisted of participants whose scores ranged from 100 to 145, which were the highest scores on the scales. Overall, 36.3% of the participating nurses were in the high-stress-level group, 27.9% were in the medium-stress-level group, and 35.7% were in the low-stress-level group. Table 12 shows the results of the analysis of the relationships between stress levels and emotional intelligence.

Table 12. The Results of the Regression Analyses About Emotional Intelligence and Stress Level Groups

	R	R ²	ΔR^2	β	P
Low-Stress-Level Group	0.228	0.052	0.044	0.270	0.120
Medium-Stress-Level Group	0.620	0.385	0.378	0.519	0.000*
High-Stress-Level Group	0.265	0.070	0.062	0.323	0.004*

* $p < 0.05$

The data in Table 12 indicate that there are statistically significant relationships between emotional intelligence and the medium- and high-stress-level groups, but not the low-stress-level group [$p=0.120$; $p>0.05$]. Interestingly, the emotional intelligence of the nurses in the medium-stress-level group affected their own stress at a rate of 37.8% [$\Delta R^2=0.378$]. Based on the data in Table 12, hypothesis 2c (*There is a significant relationship between the emotional intelligence of the participating nurses and the low-stress-level group*) was rejected, but hypotheses 2a (*There is a significant relationship between the emotional intelligence of participating nurses and the high-stress-level group*) and

2b (*There is a significant relationship between the emotional intelligence of the participating nurses and the medium-stress-level group*) were accepted. Because hypothesis 2c was rejected, the second hypothesis (*The relationships between the emotional intelligence of participating nurses and their stress levels will show differences*) should be rejected. Although there were significant relationships between stress and the emotional intelligence of the participating nurses who had medium or high stress levels, there was no relationship between stress and the emotional intelligence of the nurses with a low stress level; thus, the overall hypothesis cannot be accepted.

Discussion and Conclusions

The present study examined the relationships between emotional intelligence and the stress caused by working in a hospital, and data on the demographic characteristics of the participants were evaluated. Gender was an important criterion because we believe that there are more women than men in the nursing profession; however, we did not find any significant differences between the emotional intelligence and the stress levels of the nurses according to their genders. This finding was not entirely surprising because the women overwhelmingly outnumbered the men in the sample, and the distribution of the sample was not uniform. Although there was no statistically significant difference in the emotional intelligence or in the stress levels of male and female nurses, descriptive statistical results showed that female nurses had a higher average emotional intelligence score than male nurses. This result may be because we believe that women can be more emotionally expressive than men and are more capable of expressing empathy.

When the relationship between the marital status of the participants and their emotional intelligence was examined, we observed that married people had more emotional intelligence than singles. Because marriage requires characteristics like adaptation to personal differences, meeting different expectations and demands, showing empathy, and the ability to compromise, marriage may be thought of as an institution that requires the use of emotional intelligence. Therefore, people who have managed to establish a marriage institution are expected to have better-developed emotional intelligence.

We observed a significant relationship between age and emotional intelligence. Indeed, emotional intelligence increased with age and reached its highest value between the ages of 41 and 55. Several other studies have suggested that

there is a relationship between emotional intelligence and age, and it has been proposed that emotional intelligence develops throughout an individual's lifetime. Thus, we believe that the results of the present study agree with previous reports.

We also observed that increases in emotional intelligence were positively associated with increases in the educational level (especially when university and master's or Ph.D. levels are considered). This finding supported the belief that emotional intelligence can be learned, and thus, the increasing level of education may have supported an increase in emotional intelligence.

Furthermore, we observed a positive relationship between the length of time that the participating nurses were employed at the same workplace and their emotional intelligence. This result may be because the accumulation of experience in the same hospital may have caused the nurses both to understand others efficiently and to improve their thoughts and emotions towards their surroundings easily.

With regard to the stress levels among the nurses, we observed a negative relationship between the educational level (considering university and master's or Ph.D. degrees) of the participants and their stress levels. Highly educated individuals may have less stress because they are better prepared to handle the responsibilities of their jobs and are not as fearful of losing their jobs.

In addition, we found that job stress decreased as the nurses' wages increased. Because wages are equivalent to earned income from work rendered, higher wages may create the perception that an individual's work is valued. In addition, higher wages will affect the perception of the fairness of the wage distribution system. Indeed, an individual who thinks that he/she is given value and earns a deserved level of wages is expected to feel more comfortable in terms of his/her job.

Importantly, the present study found a statistically significant relationship between emotional intelligence and job stress. Indeed, a participant with a higher emotional intelligence level turned out to have a lower level of job stress. In addition, we found that emotional intelligence explained 12% of the nurses' job stress.

The relationship between emotional intelligence and stress has been discussed in many studies and culture may also be considered for this relationship. According to Hofstede's (2001) cultural dimensions study, Turkey has a culture that displays a high power distance, collectivism, femininity, and uncertainty-avoidance characteristics.

Because norms and rules combined to form one of the factors that caused the least amount of stress in the participants, the present stress-related results exhibited a characteristic that is well suited to Turkish culture.

Interestingly, we found that the emotional intelligence of the nurses who experienced medium stress levels significantly affected their stress level by a proportion of 37.8%. The relationship between stress and the emotional intelligence of the nurses who experienced high stress levels was significant but very weak. For the nurses who experienced low stress levels, we found that emotional intelligence did not have a significant effect on stress. The significant relationship between stress and the emotional intelligence of the participants in the medium-stress-level group compared with the other groups may have resulted because the emotional intelligence of the nurses in the medium-stress-level group allowed them to cope with the daily situations that they faced (the stress levels of the participants in the medium-stress-level group allowed them to act with their emotional intelligence). In contrast, the stress experienced by the nurses in the low- and high-stress-level groups may have had a more dominant effect on their behaviours than their emotions. For example, the stress that the nurses in the low-stress-level group experienced may have been too low to necessitate the use of their emotional intelligence, whereas the stress that the nurses in the high-stress-level group experienced may not have allowed them to use their emotional intelligence efficiently (the stress level that these nurses were experiencing may have been higher than the level at which their emotional intelligence could be effective).

References

- Abaci R (2002). The qualification of life (In Turkish). Sistem Publications, İstanbul, Turkey.
- Agma FŞ (2007). The negative effects and reasons of stress in work life (In Turkish). Master's thesis, Atılım University, Ankara, Turkey.
- Akerjordet K, Severinson E (2008). Emotionally intelligent nurse leadership: a literature review study. *J Nurs Manag*, 16(5): 565–577.
- Akyar İ (2009). The over and long working and its effects (In Turkish). [online] Available at: <http://www.turkhemsirelerdernegi.org.tr/menu/saglikguncel/thd-sagliginsesiyazilari/91-saglikguncel.aspx> (Accessed 17 March 2011).

- Allen RJ (1983). *Human Stress: Its' Nature and Control*. MacMillan Publishing Company, New York.
- Aydin Ş (2004). The organizational stress factors at hotels: An application regarding the 4-5 star hotels (In Turkish). *Journal Of Dokuz Eylul University Graduate School Of Social Sciences*. 6(4): 1–21.
- Ayranci E (2011). Effects of Top Turkish Managers' Emotional and Spiritual Intelligences on their Organizations' Financial Performance. *Bus Intell J*. 4(1): 9–36.
- Baltas A, Baltas Z (2008). Stress and the ways to cope with it (In Turkish). Remzi Publications, İstanbul, Turkey.
- Bar-On R (1997). *BarOn Emotional Quotient Inventory Technical Manual*. MHS Publications, Toronto.
- Bar-On R, Brown JM, Kirkcaldy BD, Thome EP (2000). Emotional expression and implications for occupational stress: an application of the emotional quotient inventory (EQ-i). *Pers Individ Differ*. 28(6): 1107–1118.
- Bayram S (2006). Organizational stress factors and a research on teachers (In Turkish). Master's thesis, Kocaeli University, Kocaeli, Turkey.
- Boyatzis RE, Oosten EV (2002). Developing emotionally intelligent organizations. [online] Available at: http://www.eiconsortium.org/pdf/developing_emotionally_intelligent_organizations.pdf (Accessed 17 March 2011).
- Cakir Ö (2009). A research aimed at determining perceived hardnesses in work life and its role to cope with job stress (In Turkish). Paper presented at the 17th National Management and Organisation Congress, 21-23 May 2009, Eskişehir, Turkey.
- Cascio WF (2001). Knowledge creation for practical solutions appropriate to a changing world of work. *South African Journal of Industrial Psychology*. 27(4): 14–16.
- Chapman M (2001). *The Emotional Intelligence Pocketbook*. Management Pocketbooks, Arlesford.
- Cowin L (2001). Measuring nurses self-concept. *West J Nurs Res*. 23(3): 313–325.
- Cuceloglu D (1999). Human and behaviour, basic concepts of psychology (In Turkish). Remzi Publications, İstanbul.
- Cumming EA (2005). An Investigation into the Relationship between Emotional Intelligence and Workplace Performance: An Exploratory Study. Master's thesis, Lincoln University, New Zealand.
- Derksen J, Kramer L, Katzko M (2002). Does a self-report measure for emotional intelligence assess something different than general intelligence? *Pers Individ Differ*. 32(1): 37–48.
- Digin Ö, Unsar S (2010). The determinants of workers' social security perception and their social security contentment's effects on organisational commitment, job stress and the intention to leave (In Turkish). *Dumlupinar University Journal of Social Sciences*. 26(2): 133–146.
- Dogan S, Demiral Ö (2007). The role and importance of emotional intelligence on the success of organisations (In Turkish). *Celal Bayar University the Faculty of Economic and Administrative Sciences Journal*. 14(1): 209–230.
- Dulewicz V, Higgs M (2000). Emotional intelligence – a review and evaluation study. *J Manag Psychol*. 15(4): 341–372.
- Erdogdu MY (2008). An analysis of emotional intelligence via some variables (In Turkish). *Electronic Social Sciences Journal*. 7(23): 62–76.
- Ersanli E (2003). The emotional intelligence levels of university teaching staff (In Turkish). Master's thesis, Ondokuz Mayıs University, Samsun, Turkey.
- Gardner H (2004). *Frames of mind: Multiple intelligence theory* (In Turkish). (Trans. by Ebru Kılıç), Alfa Publications, İstanbul, Turkey.
- Gohm CL, Corser GC, Dalsky DJ (2005). Emotional intelligence under stress: useful, unnecessary, or irrelevant? *Pers Individ Differ*. 39(6): 1017–1028.
- Goleman D (1995). *Emotional Intelligence*. Bantam Books, New York.
- Goleman D (2005). Why is emotional intelligence more important than IQ? (In Turkish). (Trans. by Banu S. Yüksel). Varlık Publications, İstanbul, Turkey.
- Graham H (2002). Use stress for your own benefit (In Turkish). (Trans. by Murat Sağlam), Alfa Publications, İstanbul, Turkey.
- Guleryuz G, Guney S, Aydin EM, Asan Ö (2008). The mediating effect of job satisfaction between emotional intelligence and organizational commitment of nurses: a questionnaire survey. *Int J Nurs Stud*. 45(11): 1625–1635.
- Guney S (2000). *Behavioural sciences* (In Turkish). Nobel Publications, Ankara Turkey.
- Halicinarli E, Bender MT (2006). Emotional intelligence (EQ) of women and a field research (In Turkish). Paper presented at the Second

- International Conference on Women's Studies, 27-28 April 2006, Northern Cyprus.
- Hayward BA (2005). Relationship between Employee Performance, Leadership and Emotional Intelligence in a South African Parastatal Organisation. Master's thesis, Rhodes University, Grahamstown, South Africa.
- Higgs M (2004). A study of the relationship between emotional intelligence and performance in UK call centres. *J Manag Psychol*. 19(4): 442–454.
- Hofstede G (2001). *Culture's Consequences, Comparing Values, Behaviours, Institutions, and Organizations Across Nations*. Sage Publications, Thousand Oaks, CA.
- Journal of Nursing, 2007. Emotional intelligence in the nursing profession. [online] Available at: <http://www.asrn.org/journal-nursing/202-emotional-intelligence-in-the-nursing-profession.html> (Accessed 17 May 2011).
- Landa JMA, Lopez-Zafra E (2010). The impact of emotional intelligence on nursing: an overview. *Psychology*. 1(1): 50–58.
- Lane RD, Quinlan, DM, Schwartz GE, Walker PA, Zeitlin SB (1990). The levels of emotional awareness scale: a cognitive-developmental measure of emotion. *Journal of Personal Assessment*. 55(1-2): 124–134.
- Langley A (2000). Emotional intelligence – a new evaluation for management development? *Career Dev Int*. 5(3): 177–183.
- Martinez MN (1997). The smarts that count. *HR Magazine*. 42 (11): 72–78.
- Matsumoto D, Leroux JA, Wilson-Cohn C, Raroque J, Kooken K (2000). A new test to measure emotion recognition ability: Matsumoto and Ekman's Japanese and Caucasian brief affect recognition test (JACBART). *Journal of Nonverbal Behavior*. 24(3): 179–209.
- Matthews G, Emo AK, Funke G, Zeidner M, Roberts RT, Costa PT, Schulze R (2006). Emotional intelligence, personality and task-induced stress. *J Exp Psychol Appl*. 12(2): 96–107.
- Mayer JD, Salovey P, Caruso DR (2002). *Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) Item Booklet*. MHS Publications, Toronto.
- McQueen AC (2004). Emotional intelligence in nursing work. *J Adv Nurs*. 47(1): 101–108.
- Montes-Berges J, Augusto BM (2007). Exploring the relationship between perceived emotional intelligence, coping, social support and mental health in nursing students. *J Psychiatr Ment Health Nurs*. 14(2): 163–171.
- Nowicki SJ, Duke MP (1994). Individual differences in the nonverbal communication of affect: the diagnostic analysis of nonverbal accuracy scale. *Journal of Nonverbal Behavior*. 18(1): 9–35.
- Ozbay Y, Senyuz A (1998). An analysis of perceived job satisfaction in different occupations and stress levels in relation to gender (In Turkish). Paper presented at The Tenth National Psychology Congress, 16-18 September 1998, Ankara, Turkey.
- Payne WL (1985). *A Study of Emotion: Developing Emotional Intelligence; Self-Integration; Relating to Fear, Pain and Desire (Theory, Structure of Reality, Problem-Solving, Contraction/Expansion, Tuning In/Coming Out/Letting Go)*. Doctoral dissertation, The Union for Experimenting Colleges and Universities (The Union Institute), Cincinnati, OH.
- Richards A, French CC, Johnson W (1992). Effects of mood manipulation and anxiety on performance of an emotional Stroop task. *Br J Psychol*. 83(4): 479–491.
- Rogers AK (2007). *Stress Perceptions in Occupational Therapy Students: Traditional versus Distance Education*. Master's thesis, West Virginia University, Morgantown, WV.
- Roitman JD (1999). *Emotional Intelligence: The Heart is Smarter than the Brain*. Master's thesis, University of Colorado, Colorado.
- Sahin NH (2010). Finding your own “positive stress” level, coping up with stress: A positive approach (In Turkish). Turkish Psychologists Association Publications, Ankara, Turkey.
- Salovey P, Mayer JD (1990). Emotional intelligence. *Imagination, Cognition, and Personality*. 9: 185–211.
- Saunders M, Lewis P, Thornhill A (2009). *Research Methods for Business Students*. Pearson Education, London, UK.
- Schermerhorn JR (1989). *Management for Productivity*. John Wiley and Sons Inc., New York.
- Selye H (1985). *The Stress of Life*. Springer-Verlag, New York.

- Shapiro LE (2004). To raise a kid with high EQ (In Turkish). (Trans. by Ümran Kartal), Varlık Publications, İstanbul.
- Sirin G (2007). The relationship between teachers' emotional intelligence levels and their ways of coping up with stress (In Turkish). Master's thesis, Gazi University, Ankara, Turkey.
- Stein SJ, Book HE (2003). EQ: The secret of emotional intelligence and success (In Turkish). Özgür Publications, İstanbul, Turkey.
- Stora JB (1992). Stress (In Turkish). (Trans. by Ayşe Kalın), İletişim Publications, İstanbul, Turkey.
- Tutar H (2007). Crisis and stress management (In Turkish). Seçkin Publications, Ankara, Turkey.
- Ucar F (2004). The role of mind in stress, and cognitive and psychological disorders related to stress (In Turkish). Turkish Psychology Bulletin. 10(34-35): 85–102.
- Uncu S (2007). The relationship between emotional intelligence and marriage satisfaction (In Turkish). Master's thesis, Ankara University, Ankara, Turkey.
- Weissinger H (1998). Emotional intelligence at work life (In Turkish), (Trans. by Nurettin Süleymangil). MNS Publications, İstanbul, Turkey.
- Wong C, Law KS (2002). The effects of leader and follower emotional intelligence on performance and attitude: an exploratory study. *Leader Q.* 13(3): 243–274.
- Yesilyaprak B (1990). The determinants of control focus and the research related to change: A critical assessment (In Turkish). *Psychology Journal.* 25(7): 41–52.