

## Original Article

## The Effect of Visiting on Vital Signs and Anxiety at Stroke Patients: Blood Pressure Increases while Anxiety is Reduced!

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### Abstract

**Objective:** The objective of this study is to investigate the impact of visit time on anxiety and vital findings in stroke patients.

**Methods:** This descriptive study was conducted with 122 stroke patients between August 2013 and April 2014. Parameters were gathered with patients data form, vital signs assessment form deal with pre-visiting, while-visiting, post-visiting and State and Trait Anxiety Inventory (STAI I-II) Stroke patient's vital signs are measured 15 minutes before visiting, fifteenth minutes of visiting and 15 minutes later visiting especially first degree relatives' visiting, second degree relatives' visiting and third degree relatives' visiting.

**Results:** At the end of the our research, it was found out that stroke patient's state and trait anxiety levels which were measured before visiting was also accepted as meaningful ( $p < 0.05$ ). In this result, it was observed that the gender and age of patients having experience of staying in a hospital and visitor's visiting duration was effective. It was also observed that when evaluated stroke patients' vital signs, during the second degree relatives' visiting vital signs except diastolic blood pressure and heart rate, second degree relatives' vital signs except diastolic blood pressure as to during first degree relatives' visiting caused a rising in all vital signs ( $p < 0.05$ ). Also, vital signs which were measured in visiting hours were found higher in first degree relatives' visiting and lower in second and third degree relatives' visiting compared to visiting off hours.

**Conclusions:** It has been determined that in the survey which we investigated the effects of visiting periods on vital signs and anxiety on stroke patients, the visiting reduces the patients' levels of anxiety but causes a rising in vital signs however, this rising is not in detrimental level for patients.

**Key Words:** Stroke, visit, vital signs, anxiety.

### Background

Stroke, is a disease which is mostly caused by cardiac problems and hypertension and in which monitoring follow-up vital findings is important. Following stroke, mental health disorders are observed in more than one third of the patients. The most frequent disorder is depression and anxiety (Hackett et al., 2014; Almeida & Xiao, 2007). Treatment and rehabilitation process due to stroke also extends the length of hospital stay. Due to both the disability, complications and loss of social roles and the extended recovery process, stroke causes anxiety in patients (Pleis & Lethbridge-Cejku, 2006; Warlow et al., 2001). In

the clinical care of the disease, the aim is to minimize neurological deficiencies in both the acute period and the long term, to ensure that the individual acquires independency in the highest level within his/her restrictions and to increase social, physical and psychological adaptation (Tuncay, 2004). For this, it is necessary that basic requirements are met and the individual feels safe. Meeting social needs in hospital setting is only possible by means of patient visits. The visit might be within a predetermined period of time (restricted) as well as during 24 hours (flexible). In flexible visit policy practice, restrictions determined are thought that visiting hours may tire the patient, increase the pulse and blood

pressure values of the patient and cause physiological damage; presence of visitors may prevent nursing care and medical treatment (Sims & Miraclev, 2006; Karabacak & Senturan, 2012). However, in most of the studies, it is stated that flexible visit has a positive impact on the patient and patient's relatives in increasing satisfaction and reducing anxiety (Terzi & Kaya, 2011; Smith et al., 2009; Eriksson & Bergbom, 2007). Especially in diseases which cause significant changes in the patients' lives such as stroke, being with a loved one helps the patient for holding on to the life and fighting the disease by giving hope and strength to the patient (Eriksson & Bergbom 2007). It is shown that unrestricted visits bring the hormone balance to desired levels depending on reducing the blood circulation and stress in patients and family visits caused a decrease in intracranial pressure in 75% of the patients (Fumagalli et al. 2006; Liveslay et al. 2005). However, concrete data about the real life findings which are the most important indicators of the physiological or psychological state of the individual are quite limited.

Although the impacts of visits on the patient varied in the result of studies, mostly positive impacts are mentioned and it is stated that visit does not cause significant changes on vital findings and therefore does not pose a risk for the patients (Karabacak & Senturan, 2012; Makic et al., 2011; Smith et al., 2009). However, there is no study which shows the impact of visits on the real life findings and anxiety levels of stroke patients. This study was conducted to determine the impact of visiting process on vital findings and anxiety in stroke patients.

### **Material and Method**

The research was conducted at Gulhane Military Medical Academy Neurology Clinic and Turkish Armed Forces Rehabilitation Centre Brain Crisis Unit between August 2013 and April 2014.

### **Research sample**

Among all stroke patients who were admitted to the specified units within nine months, 122 stroke patients who stayed at the hospital for three or more days, who are conscious and who accepted to participate in the study.

### **Ethical aspect of the research**

Written permit was taken from GATA Ethical Committee (3349.1 August 2013) for the research. During data collection, informed consents were taken from the patients who

accepted the research after the necessary explanations are made and data collection forms were filled in by the researchers.

### **Data collection forms**

Following the literature review, data was collected with data collection forms which were prepared for investigating the impact of visiting process on vital findings and anxiety in patients. In order to determine the anxiety level of the patients, State-Trait Anxiety Inventory, which was developed by Spielberger et al., adapted to Turkish by Oner & Le Compte and reliability and validity of which were tested in Turkish community, was used (Spielberg 1970; Oner & Compte 1993).

### **Implementation of the research**

Data was collected with face to face interviews with stroke patients in patient rooms. Vital findings of the patient was measured and assessed three times in 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> degree relatives separately. First degree relatives contain mother, father, siblings, spouses and children; second degree relatives contain aunts, uncles and grandparents and third degree relatives contain cousins, close friends and other relatives. However, since 12 patients did not have 3<sup>rd</sup> degree relatives visiting, the impact of the visits of 1<sup>st</sup> and 2<sup>nd</sup> degree relatives on vital findings was investigated. Measurements were made 15 minutes before, during and fifteen minutes after the visit. The visitor waited in a separate place without seeing the patient and visit started 15 minutes after measurements were made. The reason of 15-minute limit in measurements is that the thought that visit would cause change in endocrinal system by causing anxiety in patients and affect vital findings (Warlow et al. 2001, Stanley & Beck 2000). Such changes occur shortly after encountering the factor which may cause anxiety. In addition, vital findings were compared with the mean real life findings of the patient outside the visit hours in the days when measurement is made. State-Trait Anxiety Inventories were implemented by the researcher 15 minutes before and 15 minutes after the visit.

### **Assessing the data**

SPSS 15.00 package software was used in assessing the data and statistical analyses. Information obtained by means of data collection forms were transferred to computer. Descriptive statistic were shown in numbers and % for discrete variables; average  $\pm$  standard deviation

and minimum-maximum for measured continuous variables. In comparative analyses, student's t-test, Spearman Brown correlation coefficient, Kruskal-Wallis test and variance analysis were used.  $p < 0.05$  value was accepted as the indicator of statistical significance.

## Results

In this part, the findings obtained as a result of the analysis of the data from 122 stroke patients who were included in the study are given in Table 1.

Characteristics of the stroke patients regarding hospitalization experience, medical history, chronic diseases, diagnosis and the degree of relationship of the visitors are shown in Table 2.

76.2% of the visitors are first degree relatives. The average length of hospital stay of these patients is  $22.5 \pm 7.6$  days. The average visiting time is  $31.19 \pm 8.26$  minutes and varies between 10 and 45 minutes.

Following the visit, both state and trait anxiety levels of the stroke patients are lower than the previous measurement and the difference is statistically significant ( $p < 0.001$ ) (Table 3).

Low level positive significant relationship was found between the age and state anxiety levels of the stroke patients, which is 0.215 ( $p = 0.017$ ). In other words, state anxiety levels of the patients increase as their age increases. However, since the relationship calculated between the age and trait anxiety levels of the stroke patients ( $r = 0.021$ ) is too close to zero, no relationship was found between age and trait anxiety ( $p = 0.818$ ).

Low level positive significant relationship was found between the length of hospital stay and state anxiety levels of the stroke patients, which is 0.253 ( $p = 0.005$ ). According to this, state anxiety levels increase as the length of hospital stay increases. However, since the relationship calculated between the length of hospital stay and trait anxiety levels of the stroke patients ( $r = 0.051$ ) is too close to zero, no relationship was found between length of hospital stay and trait anxiety ( $p = 0.579$ ).

Low level positive significant relationship was found between the visiting time of the stroke patients' visitors and state anxiety levels of the stroke patients, which is 0.255 ( $p = 0.005$ ), state anxiety levels increase as the visiting time of the

patients' visitors increases. On the other hand, low level negative significant relationship was found between the visiting time of the stroke patients' visitors and trait anxiety levels of the stroke patients, which is -0.266. Trait anxiety levels decrease as the visiting time of the patients' visitors increases ( $p = 0.003$ ).

State anxiety levels of the female patients measured before visit ( $\bar{X} = 49.31$ ) were found higher than male patients ( $\bar{X} = 47.63$ ), no statistically significant difference was identified ( $p = 0.123$ ). Trait anxiety levels of the female patients measured before visit ( $\bar{X} = 45.69$ ) were higher than male patients ( $\bar{X} = 43.20$ ) and this difference was found statistically significant ( $p = 0.001$ ). After the visit, state anxiety levels of the male patients measured after visit ( $\bar{X} = 43.78$ ) were found higher than female patients. State anxiety levels of the patients measured after the visit were statistically different according to their genders ( $p < 0.001$ ). Trait anxiety levels of the female patients measured after visit ( $\bar{x} = 42.28$ ) were higher than male patients and found statistically significant ( $p = 0.001$ ). Although state and trait anxiety levels were found higher in female patients, these levels decrease following the visit in both genders.

For illiterate patients; state anxiety level before visit and state and trait anxiety levels after the visit were found higher compared to the others and it is not statistically significant ( $p > 0.05$ ). However, a significant difference was found between the trait anxiety levels of the patients according to their educational background before the visit ( $p = 0.018$ ).

State ( $\bar{x} = 51.21$ ) and trait ( $\bar{x} = 46.21$ ) anxiety levels of the stroke patients, who stayed at hospital more than two times before, measured before the visit were found higher. State ( $p < 0.001$ ) and trait ( $p = 0.02$ ) anxiety levels of the stroke patients measured before the visit vary statistically according to how many times they stayed at the hospital.

Although state anxiety level decreases in all three groups after the visit ( $p < 0.001$ ), state anxiety levels of the patients who stayed at the hospital more than two times before and trait anxiety levels of the patients who stayed at the hospital for the first time were found higher than the others ( $p = 0.001$ ).

**Table 1. Demographic characteristics of stroke patients (N=122)**

		N	%
<b>Gender</b>	Female	68	55.7
	Male	54	44.3
<b>Educational Background</b>	Illiterate	10	8.2
	Primary School	99	81.1
	High School	8	6.6
	Undergraduate	5	4.1
<b>Occupation</b>	Official	27	22.1
	Retired	64	52.5
	Housewife	18	14.8
	Other	13	10.7
<b>Residence</b>	Province	64	52.3
	District	51	41.8
	Village	7	5.9
<b>Social Security</b>	Yes	122	100.0

**Table 2. Hospitalization experience, medical history, chronic diseases, diagnosis and the degree of relationship of the visitors of the stroke patients (N=122)**

		n	%
<b>Previous hospitalization experience</b>	1 time	49	40.2
	2 times	49	40.7
	More than 2 times	24	19.1
<b>Complications due to stroke</b>	Dysphagia	12	9.8
	Aphasia	12	9.8
	Plegia	37	16.4
	Paralysis	26	12.3
	Dysphagia, plegia	20	30.3
	Aphasia, paralysis	15	21.3
<b>Other chronic diseases*</b>	Hypertension	73	59.8
	Diabetes	54	44.2
	Cardiac failure	19	15.6
	COPD	12	9.8
	Renal failure	8	6.6
<b>Detailed diagnosis of the disease (Stroke type)</b>	Haemorrhagic stroke	24	19.7
	Ischemic stroke	98	80.3
<b>Degree of relationship of the visitors</b>	1 <sup>st</sup> Degree	93	76.2
	2 <sup>nd</sup> Degree	22	18.0
	3 <sup>rd</sup> Degree	7	5.7

\*n is folded.

**Table 3. State and trait anxiety levels of the stroke patients measured before and after visit (N=122)**

STAI I-II		Average	Standard Deviation	t	P
State anxiety level	Before visit	48.57	5.96	10.452	<0.001
	After visit	40.90	6.95		
Trait anxiety level	Before visit	49.59	3.16	12.877	<0.001
	After visit	44.41	4.24		

**Table 4. Vital sings of the stroke patients in the visiting process**

Vital Sings	Degree of Relationship	15 min before visit	During visit	15 min after visit	Average*	p
Systolic Blood Pressure	1.	160.27±9.10	162.70±10.70	161.28±9.90	159.82±5.69	<0.001
	2.	153.14±10.63	154.94±9.71	154.94±11.04	159.82±5.69	<0.001
	3.	154.00±6.60	155.40±6.89	154.20±6.49	159.82±5.69	<0.001
Diastolic Blood Pressure	1.	85.57±7.59	89.78±5.62	88.46±6.08	85.84±5.51	<0.001
	2.	91.61±1.85	92.20±0.75	91.70±0.40	85.84±5.51	<0.001
	3.	86.00±1.68	87.00±3.36	86.20±3.01	85.84±5.51	<0.001
Heart Rate	1.	79.16±12.83	86.52±8.39	83.53±7.78	80.54±5.36	<0.001
	2.	78.37±3.82	80.76±4.78	80.16±5.15	80.54±5.36	<0.001
	3.	75.60±1.50	78.80±1.84	77.00±2.70	80.54±5.36	<0.001
Temperature	1.	36.86±0.12	36.76±0.22	36.78±0.16	37.01±0.32	<0.001
	2.	36.68±0.18	36.78±0.16	36.74±0.19	37.01±0.32	<0.001
	3.	36.76±0.05	36.70±0.11	36.68±0.08	37.01±0.32	<0.001
Respiratory Rate	1.	15.20±0.98	16.80±0.75	15.59±1.20	15.05±1.25	<0.001
	2.	13.80±0.75	15.00±0.00	14.20±0.98	15.05±1.25	<0.001
	3.	13.80±0.75	15.00±0.00	13.80±0.75	15.05±1.25	<0.001
Oxygen Saturation	1.	95.20±0.75	95.41±1.50	95.61±1.20	96.79±1.27	<0.001
	2.	96.40±0.49	96.60±0.49	96.64±0.49	96.79±1.27	<0.001
	3.	96.20±0.75	96.40±0.49	96.40±0.49	96.79±1.27	<0.001

\* The average of the vital finding measurements of the patients outside the visiting process.

According to complications, there is no statistical difference in the anxiety levels of the stroke patients and the decrease in the state and trait anxiety levels of the patients following the visit is not important ( $p > 0.05$ ).

Before the visit of a first degree relative, state anxiety levels of the patients were found higher ( $\bar{X} = 51.88$ ). Statistically significant difference was found in the state anxiety levels of the stroke patients measured before visit according to the degree of relationship of the visitor ( $p < 0.001$ ). However, no significant difference was found in the trait anxiety levels of the stroke patients measured before visit according to the degree of relationship of the visitor ( $p = 0.131$ ). Following the visit, state ( $\bar{X} = 41.86$ ) and trait ( $\bar{X} = 43.82$ ) anxiety levels of the patients whose first degree relative visited were found higher, but the difference was not significant ( $p = 0.112$ ).

According to the degree of relationship of the visitors, statistically significant difference was found in the vital findings of the stroke patients measured before, during and after the visit (systolic and diastolic blood pressure, heart rate, temperature, respiratory rate and oxygen saturation) of the stroke patients ( $p < 0.001$ ). Increase was observed in the vital findings during and after the visit compared to before the visit (Table 4).

## Discussion

### The change in the anxiety levels of stroke patients during visiting process

Visits are important in traumatising diseases such as stroke in which patients need social and emotional support (Yardakci & Akyolcu, 2004). In the literature, it is emphasized that patients are happy to be visited at the hospital and their anxiety is decreased and that visits are important for maintaining interaction between the patients and relatives (Tasdemir & Ozsaker, 2007; Gonzalez et al., 2004). In our study, it is seen that state and trait anxiety level decreased significantly in stroke patients following the visit. In a study by Kayhan (2006), it was seen that state anxiety levels decreased significantly, but trait anxiety levels did not change following the visit. In their study, Yardakci et al. (2004) stated that 77% of the patients wanted to be visited every day. In the same study, it was shown that visit has a positive impact on state anxiety levels, but no impact on trait anxiety level. It is also seen that the results of our study are similar to other

results, but additionally trait anxiety level is decreased in our study. It is thought that the individual's feeling that he/she is not alone and he/she is safe due to the family visit might have an impact on this result.

In our study, it was presented that state anxiety levels increase as the age of the patients increase, but there is no significant relationship with the trait anxiety. Similarly, in the study of Karahan & Kaydok, (2013) on 44 geriatric hemiplegic patients, it was reported that depression and anxiety increase in the patients as the age increases. Patel et al. (Patel et al., 2002) have also stated that cognitive disorders following stroke are correlated with age and low socioeconomic level. The reason of this may be increasing dependency and fewer number of caregivers along with the increasing age.

Stroke related treatment and rehabilitation process also extends the length of hospital stay (Warlow, 2001; Kimura, 2000). In the literature, it is reported that the frequency of depressive symptoms in the first week following the stroke is 27% and increases in time (Vasandr, Beiser & Seshadri, 2002). Similarly, it was seen in our study that the longer the patients stay at the hospital, the higher their trait anxiety levels is. Not being able to be with their family and friends adequately due to the limited visiting hours in the hospital environment may cause feelings of loneliness and isolation in the patients. In the literature, it is stated that limited visiting hours is the fundamental cause of anxiety for both families and the patients. However, it is stated that visits should be limited as flexible visiting hours may tire and cause anxiety in the patient (Tasdemir & Ozsaker, 2007). In our study, it was seen that trait anxiety levels increase in stroke patients as visiting time increases. In the study of Yardakci & Akyolcu, (2004) on 100 patients, it was stated that 54% of the patients wanted 15-30 minutes, 30% wanted 30-60 minutes and 16% wanted 60 minutes and more of visits. Based on this, it can be concluded that extended visiting hours might tire and cause anxiety in the patients and for that reason the patients do not want visitors continuously.

It is known that emotional state disorders are seen two times more in women compared to men (Esel, 2003; Stanley & Beck, 2000). In the study of Karahan & Kaydok, (2013), depression and anxiety levels were found higher in female geriatric hemiplegic patients compared to male

patients. Although state and trait anxiety levels were found higher in women in our study, this level decreases after visit in both genders. However, there was more decrease in women.

In the study of Yilmaz & Kesiktas, (1995), it was found that depression following stroke was higher in uneducated group. Similarly, state and trait anxiety level was found significantly higher before visit in the illiterate group. However, no significant relationship was found between educational background and anxiety after visit. Thus, it is seen that educational background is not effective in reduced anxiety level following the visit. This may be because the educated group perceives the disease and the sequels following the stroke better.

In our study, the state and trait anxiety levels of the stroke patients, who stayed at the hospital more than two times before, measured before the visit were found significantly higher. Although the anxiety levels decrease in patients after the visit, the anxiety levels of the patients, who stayed at the hospital more than two times before, were found higher than the others. It is thought that the reason of higher anxiety level in the patients with more hospitalization experience is related to increased disease duration. It is thought that extended disease and treatment process or the increased number of hospitalization due to multiple diseases cause anxiety in the patients due to both economic burden and the defects in the social life.

#### **Change in the vital findings of the stroke patients in the visiting process**

Based on the studies conducted, it is seen that the visits have a positive impact on the patient in terms of increasing satisfaction and decreasing anxiety. However, concrete data about the real life findings which are the most important indicators of the physiological or psychological state of the individual are quite limited. In the study of Fumagalli et al. (2006) on coronary treatment patients, it was determined that cardiovascular complications are lower in the group where visits are implemented in the duration and frequency requested by the patient compared to the group where visits are implemented two times a day. In the study of Karabacak et al. (2012), it is reported that the vital findings of the patients increase significantly during and after the visit compared to before the visit, but this increase does not cause a physiological problem in the patients.

Stewart (Stewart, 1997) has determined that patient visits have an impact in increase in the systolic and diastolic blood pressure and heart rate. When it is compared to the degree of relationship of the visitors, it is determined that the visits by spouses are the most effective of these visits and the reason for that is the discomfort the patients feel because they do not want their spouses see them in that situation. In the studies conducted at the intensive care unit, it was determined that the heart rate increases significantly during the visit, there is a 7% increase in the heart rate during the visit and the degree of relationship of the visitors has an impact on this increase (Simpson & Shaverj, 2003; Kayhan, 2006). In parallel with the studies, there was a significant increase in the vital findings measured before, during and after the visit by the first, second and third degree relatives of the stroke patients in our study. In addition, vital findings measured during the visiting process were compared to the vital findings of the patients measured outside visiting hours and it was seen that the vital findings measured during the visits by 1<sup>st</sup> degree relatives were higher than the average of the vital findings measured outside visiting hours. In the second and third degree relatives, vital findings measured during the visits were lower than the average of the vital findings measured outside visiting hours. It can be said that the increase in temperature in the visiting process should not be taken into consideration since it is between the normal values before, during and after the visit.

**Conclusion:** In this study, it is shown that the visits decreases anxiety levels in stroke patients and especially the visits by first degree relatives cause increase in the vital findings of the patient, though not on a harmful level. It is recommended that flexible visiting hours are implemented as much as possible in stroke patients, but the vital findings are monitored frequently in the high risk patient group.

#### **References**

- Almeida, O.P., J. Xiao, J. (2007). Mortality associated with incident mental health disorders after stroke. *Australian & New Zealand Journal of Psychiatry*, 41(3), 274–281, 2007.
- Eriksson, T., Bergbom, I. (2007). Visits to intensive care unit patients- frequency, duration and impact on outcome, *Nursing in critical care*, 12(1), 20- 26.
- Esel, E. (2003). Neurobiology of generalized anxiety disorder, *Bulletin of Clinical Psychopharmacology*, 13, 78-87.

- Fumagalli, S., Boncinelli, L., Lonostro, A., Valoti, P., Baldereschi, G. (2006). Reduced cardiocirculatory complications with unrestrictive visiting policy in an intensive care unit results from a pilot, randomized trial, *Circulation*, 113, 946- 952.
- Gonzalez, C.E., Carroll, D.L., Elliott, S., Fitzgerald, A., Vallenth, J. (2004). Visiting preferences of patients in the intensive care unit and in a complex medical care unit, *American Journal Of Critical Care*, 13(3),194- 197.
- Hackett, M.L., Kohler, S., O'Brien, J.T., Mead, G.E. (2014). Neuropsychiatric outcomes of stroke. *The Lancet Neurology*, 13(5), 525–534.
- Karabacak, U., Senturan, L. (2012). The impact of visits on vital signs of the patients in surgical intensive care unit: a pilot study, *Turkish Journal of Trauma & Emergency Surgery*, 18(1),18-22.
- Karahan, A., Kaydok, E. (2013). Depression and anxiety levels in geriatric patients with hemiplegia, *The Medical Bulletin of Sisli Etfal Hospital*, 47(3),130-137.
- Kayhan, Z. (2006). The effects of patient visits on anxiety, blood pressure and speed of heart beats of the patients who developed acute myocardial infarctions, *Kocaeli University Institute of Health Sciences Nursing Program*, Thesis.
- Kimura, M., Robinson, R., Kosier, J. (2000). Treatment of cognitive impairment after post stroke depression: a double-blind treatment trial. *Stroke*, 31, 1482-1486.
- Liveslay, S., Gilliam, A., Mokracek, M., Sebastian, S., Hickey, JV. (2005). Nurses' perceptions of open visiting hours in neuro science intensive care unit, *J Nurs Care Qual*, 20(2), 182-9.
- Makic, M.B., Vonruedenk, T., Rauenc, A., Chadwick, J. (2011). Evidence- based practice habits: putting more sacred cow soutto pasture. *Crit care nurse*, 31(2), 38-61.
- Oner, N., Le Compte A. (1993). State and trait anxiety inventory - manual (Turkish). İstanbul: Bogazici University Press.
- Patel, M.D., Coshall, C., Ruddag, Wolfe, CD. (2002). Cognitive impairment after stroke: clinical determinants and its associations with long-term stroke outcomes. *J Am Geriatr Soc*, 50 (4), 700-706.
- Pleis, J.R., Lethbridge-Cejku, M. (2006). Summary health statistics for U.S. adults: National Health Interview Survey, 2005. *Vital Health Stat*, 232,1-153.
- Sims, J., Miraclev, A. (2006). A look at critical care visitation the case for flexible visitation, dimensions of critical care nursing, 25 (4), 175-180.
- Smith, L.S., Medves, J., Harrison, M.B., Tranmer, J., Waytuck, B.(2009). The impact of hospital visiting hours policies on paediatric and adult patients and their visitors. *JAN*, 65, 2293-8.
- Spielberg, C.D. (1970). Manual for state-trait anxiety inventory. California: Consulting Psychologists Press.
- Simpson, T., Shaver, J. (2003). Cardiovascular responses to family visits in coronary care unit patients, *Heart and Lung*, 19 (4), 51- 344.
- Stanley, M., Beck, G. (2000). Anxiety disorders. *Clinpsycholrev*, 20, 731 – 754.
- Stewart, B.H. (1997). Nursing responsibilities in changing visiting restrictions in the intensive care unit, *Heart and lung*, 2(10), 73- 85.
- Tasdemir, N., Ozsaker, E. (2007).Visiting Practices in Intensive Care Units: Effects of Visiting to Patients, Patient's Families and Nurses, *Journal Of Cumhuriyet University School Of Nursing*, 11(1), 27-31.
- Terzi, B., Kaya, N. (2011). Nursing Care of Critically Ill Patients, *Intensive Care Journal*, 1, 21-5.
- Tuncay, O.F. (2004). The effect of the self-care training program on the daily living activities of individuals with cerebrovascular disease. *Cumhuriyet University Institute of Health Sciences Nursing Program*, Thesis.
- Vasanr, S., Beiser, A., Seshadri, S. (2002). Residual life time risk for developing hypertension in middle-aged women and men: the framingham heart study. *Jama*, 287, 1003–1010.
- Warlow, P., Dennis, S., Vangijn, J., (2001). *Stroke: a practical guide to management*, Oxford, 573-652.
- Yardakci, R., Akyolcu, N., (2004). The Effect Of The Visits Made Preoperation On The Patients' Anxiety Level, *Journal of Research and Development in Nursing*, 6(12), 7-14.
- Yilmaz, I., Kesiktas, N. (1995). Comparison of depression after stroke with other clinical features. *Thinking Man*, 8 (2), 27-30.