Original article

Investigation of the effect of expressive touch on physiological and psychological states of intensive care patients

Nadiye Ozer[1], Seyhan Citlik Saritas[2]

1-Nadiye Ozer, PhD, Associate Professor, Faculty of Health Sciences, Atatürk University, Erzurum, Turkey

2- Seyhan Citlik Saritas, PhD, Assistant Professor, School of Health Sciences, Inonu University, Malatya, Turkey

Corresponding author: Seyhan Citlik   Email: seyhancitlik@hotmail.com

Abstract

Objective: The expressive touch is a complementary treatment method with the easiest practice among the independent functions of nurses

Methods: The purpose of this study was to investigate the effect of expressive touch on physiological and psychological states of intensive care patients. The study was conducted by using the pretest-posttest experimental model with control group. 76 patients (38 control-38 experimental), who received treatment in the intensive care unit since they had a myocardial infarction for the first time, were included in the study after the power analysis. The State Anxiety Inventory was applied in the experimental group 15 minutes before the touch and 15 minutes after the touch; the haemoglobin, blood pressure and pulse values were recorded. In the control group, on the other hand, the data were collected within the same duration by using the same method without touching

Results: The anxiety scores and blood pressure averages of patients before and after the touch on days 1 and 2 were found to be statistically significant between groups. The difference between the mean haemoglobin values was found to be significant on day 2. The difference between the pulse averages was not statistically significant.

Conclusion: The expressive touch might be effective on decreasing the anxiety, increasing the haemoglobin values and decreasing the blood pressure and pulse of patients in the intensive care unit.

Keywords: Expressive touch,Intensive care, Nursing; Anxiety.

Introduction

Intensive Care Units (ICU) are departments where patients with a serious general state are followed on monitors and treated with advanced technology. Nursing care has a great importance in ICU, where interventional proceedings are applied intensely, and morbidity and mortality rates are high (1). Technological instruments that are used in ICU might cause changes in the self-perception of individual and decrease the healthcare staff to touch the patient. Thus, the nurses should use the touch in a conscious, planned and intentional way in intensive care units according to the needs of patients (2,3).

Being a way of expressing feelings by touching, the expressive touch provides a physiological and psychological therapeutic effect for patients, who have the risk of touching deprivation in intensive care units (4). The touching movements that are applied on the skin stimulate the receptors and the conductions that are sent to the brain are interpreted and responded by the person. Being the essential need of human, the touch could send thousands of positive and negative conductions such as love, compassion, pain, sexuality and punishment (5,6,7).

Touching increases the parasympathetic activation, which results in a decrease in pulse, and systolic and diastolic blood pressure. Even though the pulse check by the nurse is a simple example of touch, it is indicated that the pulse rate might change during the palpation of the radial pulse and cardiac arrhythmia could be fixed with a slight touch of the nurse (8).

Having a sensual content and reassuring feature, the expressive touch provides a physiological and psychological therapeutic effect for patients, who have the risk of touching deprivation. The expressive touch could be applied by nurses, since

it does not require a special training. The expressive touch makes the patient feel appreciated, increases the patient-nurse interaction, decreases the anxiety of patient and affects the physiological recovery by decreasing the respiration, blood pressure and pulse (4).

There are some studies which demonstrate that the expressive touch not only decreases the physiological indicators in patients such as pulse, blood pressure and respiration, but also increases the haemoglobin value (4). The touching effect stimulates the energy on the skin surface and increases the haemoglobin level (9).

The expressive touch is a complementary treatment method with the easiest practice among the independent functions of nurses (10).

In spite of its positive effects on patients, the therapeutic and expressive touch is mostly ignored within the scope of nursing practices (9).

Method

The study was conducted by using the pretest-posttest experimental model with control group. All of 76 patients (38 control-38 experimental) with communication skills and a stable state, who received treatment in the ICU since they had a myocardial infarction for the first time and were older than 18, were included in the study. Sample size was determined through the power analysis. As a result of the power analysis, the alpha value was accepted as 0.05 and the confidence interval as 95%. Sample size was determined as 38 patients for each group. Patients who were hospitalized in intensive care units and fulfilled the study criteria were selected from the population using non-probability random sampling method. The study was conducted in the coronary intensive care unit of a university hospital between 15 December 2005 and 20 February 2006. All patients fulfilling the inclusion criteria were randomly assigned to one of the two groups: experimental or control.

A written permission was obtained from the Cardiology Department of university hospital in order to conduct the study in the cardiology ICU.

Procedure

Experimental Group: Patients, who were included in the experimental group, were touched on hand for 20 minutes on days 2 and 3 of the hospitalization in ICU. They were applied with descriptive data form (just for once) and State Anxiety Inventory 15 minutes before the touch and 15 minutes after the touch; and their haemoglobin, blood pressure and pulse values were recorded.

Control Group: Patients, who were involved in the control group, were applied with descriptive data form (just for once) and State Anxiety Inventory within the same period without any practice; and

their haemoglobin, blood pressure and pulse values were recorded.

Instruments

Descriptive Data Form: Descriptive Data Form consists of totally 5 questions about age, gender, marital status, educational level and mode of treatment.

State Trait Anxiety Inventory (STAI): STAI was developed by Spielberger et al. in 1970. The reliability and validity of the Turkish version of STAI was conducted by Öner and Le Compte in 1985. Cronbach's alpha internal consistency level was found to be 0.94. The state anxiety inventory measures how a person feels in a certain situation at a certain period of time. The STAI consists of 20 statements and the subjects are asked to indicate how they felt 'at the moment' using a 4-point Likert scale ranging from 'not at all' to 'very much so'. Total scores obtained from the STAI range from 20 to 80. The anxiety level is evaluated from the total score obtained from the STAI. A score between 1 and 20 is deemed to be not anxious; 21 to 40 as mild anxiety, 41 to 60 as moderate anxiety, and 61 and higher as severe anxiety (11).

Variables of the Study

Independent Variables: The attempt of touching is an independent variable.

Dependent Variables: Pulse, blood pressure, anxiety, and haemoglobin levels are dependent variables of this study.

Data analysis

The SPSS 10.0 software program was used for the analysis of the data. Chi-square was used to compare the demographic features of patients in each group, independent-sample t test was used to compare the score and value averages of experimental and control groups, State Anxiety Inventory was used in each group and paired t test was used to compare the averages of haemoglobin, blood pressure and pulse values. The statistical significance level is 0.05 for this study.

Results

pressure, pulse and anxiety between the experimental and control groups before and after touch in the measurements made on days 1 and 2. The score averages of anxiety and blood pressure between the groups were statistically significant before and after touch on days 1 and 2 (anxiety on 1st and 2nd day p= .000, diastole on 1st day p= .038. systole on 1st day p= .030, diastole on 2nd day p= .010, systole on 2nd day p= .027). While the difference between score averages of haemoglobin was significant on day 2 (p= .049), the haemoglobin average of the experimental group was higher on the day 1 (experimental= 15.32 ± 2.14, control 14.66 ± 1.59). Even though the

Table 1. Characteristics of the sample

Variable	Experimental n =38 (%)	Control n = 38 (%)	p-value
Gender			
Female	4 (10.5)	10(26.3)	
Male	34(89.5)	28(73.7)	*p= .076*
Marital Status			
Married	38(100)	38(100)	
Single	_	-	
Education			
Literate	16(42.1)	11(28.9)	
Primary school	17(44.7)	22(57.9)	*p= .457*
Secondary school	5(13.2)	5(13.2)	
Method of treatment			
Invasive	21(55.3)	24(63.2)	
Medical	17(44.7)	14(36.8)	*p= .484*
Age	X± SS=60.60 ± 10.97	X± SS=61.10 ± 11.46	*p= .846*

Table 2. The comparison of the score averages of haemoglobin, systolic pressure, diastolic pressure, pulse and anxiety between the experimental and control groups before and after touch in the measurements made on days 1 and 2. (ExperimentelGroup n=38, Control Group n=38)

		Groups	X	SD	Test, Significance
1st DAY	TB.* Haemoglobin	E	15.05	2.13	t= .880 p= .381
		C	14.66	1.59	
	TA.** Haemoglobin	E	15.32	2.14	t= 1.539 p= .128
		C	14.66	1.59	
	TB. Systolic	E	108.21	25.13	t= 1.323 p= .190
		C	114.21	12.22	
	TA. Systolic	E	107.63	11.95	**t= -2.207 p= .030**
		C	113.68	11.95	
	TB. Diastolic	E	69.94	13.60	t= 1.176 p= .243
		C	72.89	7.31	
	TA. Diastolic	E	66.84	8.08	**t= -2.135 p= .038**
		C	70.78	8.18	
	TB. Pulse	E	78.97	15.09	t= .427 p= .671
		C	77.57	13.34	
	TA. Pulse	E	75.10	13.89	t= -.620 p= .537
		C	77.02	13.09	
	TB. Anxiety	E	54.57	5.65	t= -1.697 p= .094
		C	56.39	3.39	
	TA. Anxiety	E	44.31	6.80	**t= -10.083 p= .000**
		C	56.65	3.25	
2nd DAY	TB.* Haemoglobin	E	15.16	2.15	t= .1.232 p= .222
		C	14.62	1.58	
	TA.** Haemoglobin	E	15.48	2.15	**t= .2.006 p= .049**
		C	14.61	1.58	
	TB. Systolic	E	111.84	15.57	t= .340 p= .735
		C	110.78	10.99	
	TA. Systolic	E	105.26	10.32	**t= -2.258 p= .027**
		C	110.78	10.99	
	TB. Diastolic	E	71.05	9.52	t= .904 df=74 p= .369
		C	69.21	8.18	
	TA. Diastolic	E	63.94	5.94	**t= -2.648 p= .010**
		C	68.42	8.55	
	TB. Pulse	E	77.76	14.37	t= .828 p= .410
		C	75.18	12.73	
	TA. Pulse	E	73.13	14.33	t= -.684 p= .496
		C	75.26	12.77	
	TB. Anxiety	E	52.44	5.08	t= 1.732 p= .087
		C	55.23	8.53	
	TA. Anxiety	E	42.94	5.42	**t= -13.240 p= .000**
		C	56.36	3.10	

Table 3. The comparison of the score averages of haemoglobin, systolic pressure, diastolic pressure, pulse and anxiety between the experimental and control groups in the measurements made before and after touch on days 1 and 2. (Experimentel Group n=38 , Control Group n= 38)

			X	SD	Test, Significance
EXPERIMENTAL GROUP	**1st DAY**	TB.Haemoglobin	15.05	2.13	**t= -16,079p= ,000**
		TA.Haemoglobin	15.32	2.14	
		TB. Sistolic	108.21	25.13	t= -,159 p= ,874
		TA. Sistolic	107.63	11.95	
		TB. Diastolic	69.94	13.60	t= -1,494 p= ,144
		TA.Diastolic	66.84	8.08	
		TB.Pulse	78.97	15.09	**t= 7,438 p= ,000**
		TA.Pulse	75.10	13.89	
		TB.Anxiety	54.57	5.65	**t= 5,946 p= ,000**
		TA.Anxiety	44.31	6.80	
	2nd DAY	TB.Haemoglobin	15.16	2.15	**t= -17,414 p= ,000**
		TA.Haemoglobin	15.48	2.15	
		TB. Sistolic	111.84	15.57	**t= 5,441 p= ,000**
		TA. Sistolic	105.26	10.32	
		TB. Diastolic	71.05	9.52	**t= 4,879 p= ,000**
		TA.Diastolic	63.94	5.94	
		TB.Pulse	77.76	14.37	**t= 7,953 p= ,000**
		TA.Pulse	73.13	14.33	
		TB.Anxiety	52.44	5.08	**t= 6,666 p= ,000**
		TA.Anxiety	42.94	5.42	
CONTROL GROUP	**1st DAY**	TB.Haemoglobin	14.66	1.59	t= -1,356 p= ,183
		TA.Haemoglobin	14.66	1.59	
		TB. Sistolic	114.21	12.22	t= -1,434 p= ,160
		TA. Sistolic	113.68	11.95	
		TB. Diastolic	72.89	7.31	**t= 3,141 p= ,003**
		TA.Diastolic	70.78	8.18	
		TB.Pulse	77.57	13.34	t= 2,603 p= ,013
		TA.Pulse	77.02	13.09	
		TB.Anxiety	56.39	3.39	t= -1,122 p= ,269
		TA.Anxiety	56.65	3.25	
	2nd DAY	TB.Haemoglobin	14.62	1.58	t= -1,671 p= ,103
		TA.Haemoglobin	14.61	1.58	
		TB. Sistolic	110.78	10.99	**t= 34,777p= ,000**
		TA. Sistolic	110.78	10.99	
		TB. Diastolic	69.21	8.18	t= 1,781 p= ,083
		TA.Diastolic	68.42	8.55	
		TB.Pulse	75.18	12.73	t= -,770p= ,446
		TA.Pulse	75.26	12.77	
		TB.Anxiety	55.23	8.53	t= -,853 p= ,399
		TA.Anxiety	56.36	3.10	

difference between the pulse averages was not statistically significant, the score average of pulse was lower in the experimental group after the touch (experimental =75.10±18.89 on day 1, control=77.02±13.09 on day 1, experimental = 73.13±14.33 on day 2, control= 75.26±12.77 on day 2).

Discussion
The findings of the study, which was conducted to investigate the effect of the expressive touch on physiological and psychological states of intensive care patients, were discussed with the literature.
As a result of the measurements made before and after the touch on days 1 and 2; while the difference between score averages of haemoglobin of groups was significant on the 2nd day (p= .049),

the haemoglobin average of the experimental group was higher on day 1 (experimental = 15.32 ± 2.14, control 14.66 ± 1.59).
As a result of the study that was conducted by Movaffaghi et al. (2006) through dividing 307 nursing students with anaemia into 3 groups; it was demonstrated that there was a significant difference between groups that were applied with gesture and therapeutic touch and the control group, in terms of the haemoglobin value.
Arslan and Özer (2007) conducted a study with pretest-posttest control group on patients hospitalized in anaesthesia ICU in order to investigate the effect of expressive touch on haemoglobin levels of patients and determined that the haemoglobin average of the experimental group was statistically significant.

The anxiety score averages between the experimental and control groups during measurements made before and after the touch on days 1 and 2 were statistically significant (anxiety p= .000 on days 1 and 2).

The study that was conducted by Kim and Buschmann (1999) with 30 patients with dementia determined a decrease in anxiety levels after the touch. As a result of a study conducted by Engle and Graney (2000) with 11 patients and 2 groups, a decrease was determined in the stress levels of both groups. Similar results were revealed by Olson et al.(1992), Heidt (1981), Weze et al. (2004), Weze et al.(2005), Gagne&Toye (1994).

The score averages of blood pressure between the groups were statistically significant in the measurements made before and after the touch on days 1 and 2 (diastole p= .038 on day 1. systole p= .030 on day 1, diastole p= .010 on day 2, systole p= .027 on day 2).

In his study conducted in 25 internal ICUs, McAdams (2000) determined a statistically significant decrease in the systolic, diastolic and average arterial blood pressure after the touch.

Silva (1996) studied on patients who underwent abdominal hysterectomy operation through dividing them into 3 groups and determined a significant decrease in blood pressure averages of the touch group. A similar result was revealed in the study of Cassidy et al. (2010), as well.

Even though the difference between the pulse averages of groups was not statistically significant in the measurements made before and after the touch on days 1 and 2, the score average of pulse after the touch was lower in the experimental group (experimental=75.10±18.89 on day 1, control=77.02±13.09 on day 1, experimental = 73.13±14.33 on day 2, control= 75.26±12.77 on day 2).

In their study, Engle and Graney (2000) applied therapeutic touching on nursing students and determined a significant decrease in pulse averages. Silva (1996) studied on 60 patients who underwent abdominal hysterectomy operation through separating them into 3 groups and determined a significant decrease in pulse averages of the touch group.

In their study, Pocotte et al. (2008) applied touching as a nursing intervention and stated that there was a decrease in pulse rate of paraplegic patients after the practice of touching, which lasted for 30 minutes within a period of 6 weeks.

In their controlled study in which they investigated the effect of preoperative touch, Cassidy et al. (2010) compared 38 female patients and two groups (practice of touch with music and practice of only music) and determined that the practice of touch with music was significantly different from the other, in terms of the pulse rate.

Limitations

This study has two limitations. The first limitation is that it was conducted only with one group. The second limitation is that non-probability random sampling method was used while selecting the sample from the population. Thus, the results of the study could be generalized to this study group.

Implications for Practice

Although the expressive touch that is one of the complementary and alternative therapies has positive effects on the organism, it is not used as a non-pharmacological nursing intervention in Turkey.

Due to its easy, safe and efficient practice, the expressive touch should be applied as one of the independent functions of nurses and new studies should be conducted on this subject.

Conclusion

It is required for nurses to have sufficient knowledge and experience in order to professionalize the nursing and present an efficient care in their units.

Acknowledgement

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