ORIGINAL RESEARCH

Effects of Therapeutic Massage on Fear, Anxiety, and Pain Levels of Critical Care Patients

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Abstract
Objective: Holistic health approach addresses the individual as a whole being consisting of different dimensions in clinical practice. In this study, it was aimed to investigate the effects of therapeutic massage (TM) on fear, anxiety, and pain levels of critically ill patients.
Material-Method: The sample of the study consisted of 50 patients in the intensive care unit (ICU). The patients were divided into two groups: control and experimental groups, each consisted of 25 patients. the data were collected using a questionnaire form containing sociodemographic and some medical parameters, Visual Analogue Scale for Anxiety (VAS-A), Visual Analogue Scale for Anxiety (VAS-A), and Visual Analogue Scale for Pain (VAS-P).
Results: Of the patients, 31 (62%) were male, 22 (44%) were 44 to 64 years old, 45 (90%) were married and 27 (54%) were primary school graduates. The reason for staying in the ICU was the diagnosis of respiratory distress in 21 (42%) of the patients and 37 (74%) were staying in the ICU for two days. There was a decrease in systolic blood pressure, diastolic blood pressure, and pulse in the experimental group compared to the control group; however, this was not statistically significant (p>0.05). It was further observed that high respiratory values decreased, and oxygen saturation values increased (p<0.05). A statistically significant decrease was observed in anxiety, fear, and pain levels of the patients in the experimental group (p<0.05).
Conclusion: TM may be used as a complementary method for anxiety, fear and pain treatment of critically ill patients. It is essential that healthcare professionals working with critically ill patients should be aware of the benefits of TM with a holistic approach.
Keywords: Anxiety, Fear, Holistic, Critical Care, Pain, Therapeutic Massage

INTRODUCTION

The integration of healthcare teams with a holistic model, which addresses the individual as a whole being consisting of all dimensions is crucial in the critical care units [1]. The goal is to improve quality of life in a multidimensional manner [2]. It has been demonstrated that display of genuine empathy, compassion, and physical touch are relevant for improving the healing capacity of patients [3,4]. 'Therapeutic Massage' (TM), which is also known as the 'therapeutic tactile touch' or 'effleurage' is such a type of physical contact. TM is all light massages that are applied to large areas of the body with the palms in the direction of the return of the venous circulation to the heart, involving soft, patting movements, by sliding the hands on the skin, and do not cause pressure in the deep muscle masses. Today, it is used as a complementary therapy in palliative care, geriatric care and intensive care settings [5,6].

TM is a kind of tactile touch which may cause certain physiological effects on the body [7,8]. Researchers have evaluated the cortical dynamics of tactile contact [9–11], and how the brain encodes TM [12,13].

TM is transmitted primarily through stimulation of the nerve's unmyelinated C- fibers, that may contribute the treatment. The pathway runs in part through the spino- mesencephalic tract, engaging

Volume: 2 **Issue:** 1
Year: 2021

International Journal of Traditional and Complementary
Medicine Research

Publisher
Duzce University

the amygdala, insula and anterior cingulate cortex[8].

The physiological response to TM includes the release of certain neuro-transmitters that lead to neuro-endocrine impact; vagal stimulation; reduction of stress, pain and depression; and enhancement of immunity [7,14]. An interoceptive effect of TM may aid alterations to the insular cortex and limbic system [15]. These reactions may have a positive impact on the patient and may contribute to the treatment [8,16].

Intensive care units (ICU) differ from other units in terms of the characteristics of patients and diseases, treatment methods, physical characteristics and emotional environment [17]. Individuals are hospitalized in the ICU due to a life-threatening disease or sudden and serious changes in their health status [18].

TM has positive effects on anxiety, pain, nausea, fatigue and patients' quality of life [19]. It has been used to alleviate the pain and suffering of the patient, and to support the health and well-being of the patient, and to improve the quality of care provided [20]. It has been shown that Swedish massage reduced anxiety and improved vital signs in critically ill patients immediately after the massage and 30 minutes after the massage [21]. Clinical effectiveness of therapeutic touch has positive effects on pain, nausea, anxiety, fatigue, quality of life and biochemical parameters in cancer patients [22]. TM may lead to many positive results in preterm newborns babies in the neonatal intensive care unit who are exposed to a highly stressful environment (such as noise, bright light) and lack the tactile stimulation of the care of their mothers [23].

In a unit with critical importance such as intensive care, TM application is an easy and practical application that can be applied by nurses. It is very important as it can contribute to the increase in the comfort and well-being of the patients and to decrease their fear, anxiety and pain. However, there are limited ICU-studies published, concerning tactile touch or massage. The current study was conducted to determine the effect of TM application on fear, anxiety, and pain levels of intensive care patients.

MATERIALS AND METHODS
Type of the study
The research was planned and conducted as a quasi-experimental study in which the pre-test and post-test measurements were carried out and the experimental and control groups were used to determine the effect of TM applications on the level of fear, anxiety and pain in patients in intensive care. It was registered at the archive of the Databases of National Thesis Center of the Council of Higher Education (No:409467/2015).
The place and time of the study
The study was performed in Istanbul Şişli Hamidiye Etfal Training and Research Hospital between 1 November 2014 and 31 January 2015.
Universe and sample of the research
The universe of the research was composed of patients hospitalized in the intensive care at Istanbul Şişli Hamidiye Etfal Training and Research Hospital. The study sample consisted of 25 experimental group and 25 control group patients who were in the intensive care unit, who were in the general intensive care unit.
Inclusion criteria:
• Being in the ICU for at least 24 hours
• Being between the ages of 18 to 80
• Being conscious
• Not having a perception disorder
• Not having a cardiological disorder
• Agree to participate in the study
Application of the research
The 'TM protocol' was applied to the patients in the experimental group for 30 minutes every day for 3 days. In order to evaluate the anxiety, fear and pain experienced by the patient before and after the application, VAS-A, VAS-F and VAS-P were used. Physical parameters of the patient such as blood pressure, pulse, respiration, body temperature, O_2 saturation and glucose level were also evaluated before and after the application. No intervention was made to the patients in the control group, except for routine care in the unit.

It was recorded by applying the relevant measurement tools at specified times.

Application protocol

To the patients in the experimental group; TM applications (using the effleurage-quaking-massage maneuver) were performed for 3 days; 30 minutes between 18.00-20.00 every day on the following areas:

• Head (5min)

• Face area (cheek and forehead) (5min)

• Right hand and forearm, left hand and forearm (5min)

• Right shoulder, left shoulder (5min)

• Applied to the right foot and left foot areas (5 min),

• During the transition from one region to another, the patient was encouraged to breathe deeply 5 times with the command.

Research variables

The independent variables of the research are the age, gender, educational status, marital status, diagnosis, length of hospital stay, intubation status.

The dependent variables of the research are; the patient's systolic blood pressure, diastolic blood pressure, pulse, respiration, saturation, glucose, anxiety, fear and pain levels.

Data collection tools

In the study, the data were collected using a questionnaire form containing sociodemographic and some medical parameters, Visual Analogue Scale for Anxiety (VAS-A), Visual Analogue Scale for Anxiety (VAS-A), and Visual Analogue Scale for Pain (VAS-P). VAS-A, VAS-F, and VAS-P were used with scoring between 1 (none) and 5 (most), 1 (none) and 5 (most), 1 (none) and 10 (most), respectively.

Evaluation of the data

The data were evaluated in computer environment using SSPS 20.0 package program. Shapiro-Wilk test was used to determine whether numerical variables show normal distribution. In the analysis of the data; In descriptive statistics, percentages, arithmetic mean, and standard deviation values were used. Independent samples t test was used in binary group comparisons. One Way Anova test was used in multiple group comparisons. Pearson correlation analysis was used to evaluate the relationship between variables. In comparisons, p <0.05 value was considered statistically significant.

Ethical aspect of research

In order to conduct the research, written permission from the institution where the research was conducted, and ethical committee approval was obtained from the Istanbul Medipol University Non-Interventional Clinical Research Evaluation Commission (No:197/2014). Verbal and written consent was obtained from the patients

Limitations of research

This research covered a limited number of patients who were hospitalized in the intensive care unit at a state hospital.

RESULTS

Table 1 shows the introductory disease-related characteristics of patients. It was seen that 31 of the patients (62.0%) were male, 22 (44.0%) were between 44-64 years old, 45 (90.0%) were married and 27 (54.0%) were primary school graduates. It was determined that 21 (42.0%) of the patients had been in intensive care with the diagnosis of respiratory distress, 37 (74.0%) had been in intensive care for 2 days and 45 (90.0%) were extubated.

Table 2 shows the vital signs of the patients. It was determined that there was no significant change in the body temperature, pulse and blood pressure values in the experimental group after TM application. There was a significant change in the distribution of respiratory values of the patients in the experimental group after TM application. After application, there was a significant difference in the 3 measurements in the experimental and control groups (p <0.05). In TM application, respiratory values decreased on average in the experimental group, whereas in the control group not subject to TM application, the respiratory values increased on average. After application, there was a significant difference in

Volume: 2   Issue: 1
Year: 2021

International Journal of Traditional and Complementary
Medicine Research

Publisher
Duzce University

Table 1. Introductory disease-related characteristics of patients

Characteristics of Patients		Number (n)	Percent (%)
Gender	Female	19	38.0
	Male	31	62.0
Age	23-43 years old	8	16.0
	44-64 years old	22	44.0
	65 years and above	20	40.0
Marital status	Married	45	90.0
	Single	5	10.0
Educational Status	Literate	8	16.0
	Primary education graduate	27	54.0
	High school graduate and above	15	30.0
Diagnosis	Colon-abdominal diseases	10	20.0
	Pneumonia	4	8.0
	Cancer	9	18.0
	Respiratory distress	21	42.0
	Hypertension	6	12.0
Pre-Application Hospitalization Period	2 days	37	74.0
	3 days	7	14.0
	4 days	6	12.0
Intubation Status	Intubated	5	10.0
	Extubated	45	90.0

Table 2. Vital signs of patients

Vital Signs	Group	1st measure		2nd measure		3rd measure	
		Pre	Post	Pre	Post	Pre	Post
		Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
Systolic Blood pressure	Experiment	141.00±24.28	132.08±21.01	138.04±21.97	134.16±17.04	135.20±16.91	128.76±15.58
	Control	126.96±22.04	129.28±23.39	129.48±24.05	132.04±24.77	126.32±22.25	129.76±22.16
	Test	$t=2.140$	$t=0.444$	$t=1.313$	$t=-0.352$	$t=1.588$	$t=-0.184$
		$p=0.037$	$p=0.659$	$p=0.195$	$p=0.726$	$p=0.119$	$p=0.854$
Diastolic Blood pressure	Experiment	70.36±16.11	68.36±16.09	72.08±14.52	69.76±14.35	70.40±13.02	67.88±13.45
	Control	63.40±13.33	65.20±12.72	65.60±15.36	66.88±15.54	63.44±12.65	63.76±11.78
	Test	$t=1.66$	$t=0.77$	$t=1.53$	$t=0.68$	$t=1.91$	$t=1.15$
		$p=0.10$	$p=0.44$	$p=0.13$	$p=0.49$	$p=0.06$	$p=0.25$
Pulse	Experiment	91.96±16.16	88.64±16.14	88.52±15.37	85.76±15.08	87.64±13.26	85.76±13.22
	Control	87.00±17.71	87.96±18.49	84.92±17.26	85.56±18.18	84.76±18.13	85.32±18.51
	Test	$t=1.03$	$t=0.13$	$t=0.79$	$t=0.04$	$t=0.64$	$t=0.09$
		$p=0.30$	$p=0.89$	$p=0.44$	$p=0.96$	$p=0.52$	$p=0.92$
Body temperature	Experiment	36.72±0.412	36.68±0.416	36.68±0.49	36.66±0.48	36.43±0.36	36.42±0.33
	Control	36.74±0.65	36.76±0.65	36.53±0.54	36.50.±0.51	36.46±0.46	36.47±0.47
	Test	$t=-0.07$	$t=-0.567$	$t=1.00$	$t=1.10$	$t=-0.30$	$t=-0.44$
		$p=0.93$	$p=0.57$	$p=0.32$	$p=0.27$	$p=0.76$	$p=0.65$
Respiratory	Experiment	20.00±5.17	17.64±4.37	18.64±5.07	16.84±5.04	17.44±4.97	15.88±5.03
	Control	20.20±4.25	21.08±4.48	18.72±3.12	19.44±3.79	18.68±3.57	19.48±3.66
	Test	$t=-1.49$	$t=-2.74$	$t=-0.06$	$t=-2.05$	$t=-1.01$	$t=-2.89$
		$p=0.88$	$p=0.009$	$p=0.94$	$p=0.04$	$p=0.31$	$p=0.006$
Glucose	Experiment	150.40±68.56	147.84±68.39	145.80±67.77	143.40±65.38	143.04±55.94	138.48±54.16
	Control	146.12±51.21	144.64±50.18	135.92±45.07	135.20±46.47	125.12±35.23	131.88±37.88
	Test	$t=0.25$	$t=0.18$	$t=0.60$	$t=0.51$	$t=1.35$	$t=0.49$
		$p=0.80$	$p=0.85$	$p=0.54$	$p=0.61$	$p=0.18$	$p=0.62$

the oxygen saturation values in all 3 measurements in the experimental and control groups ($p<0.05$). Saturation values in the TM application showed an average increase in the experimental group, while the saturation values in the control group that were not subject to TM application decreased on average.

Table 3 shows the VAS-A, VAS-F, VAS-P mean values of the patients. After the application, VAS-F values were found to be significantly different in the 3 measurements in the experimental and control groups ($p<0.05$). In the TM application, the VAS-F values decreased on average in the experimental group, while in the control group not subject to TM application, the VAS-F values increased on average. After the application, VAS-A values were significantly different in the 3 measurements in the experimental and control

groups ($p<0.05$). In TM application, VAS-A values decreased on average in the experimental group, whereas in the control group not subject to TM application, VAS-A values increased on average. After the application, there were significant differences in the VAS-P values in the 3 measurements in the experimental and control groups ($p<0.05$). While the VAS-P values decreased significantly in the experimental group in TM application, there was no significant change in the control group not subject to TM application.

Table 4 shows the correlation of the post-application VAS-A, VAS-F, VAS-P mean values of the patients. After the application, it was determined that there was a positive correlation in pain, fear, anxiety mean scores, and pain, anxiety and fear feelings decreased in parallel ($p \leq 0.001$).

Table 3. VAS-A, VAS-F, VAS-P mean values of the patients.

Scales	Group	1st measure		2nd measure		3rd measure	
		Before	After	Before	After	Before	After
		Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD	Mean±SD
VAS-P	Experiment	4.96±1.69	2.04±1.81	4.96±1.56	1.92±1.57	4.72±1.40	1.52±1.08
	Control	6.36±2.17	6.32±2.21	5.56±2.20	5.72±2.37	5.76±2.16	5.88±2.14
	Test	t=-2.53	t=-7.48	t=-1.11	t=-6.66	t=-2.01	t=-9.06
		p=0.01	p=0.00	p=0.27	p=0.00	p=0.04	p=0.00
VAS-A	Experiment	3.40±1.11	1.44±0.86	3.28±0.89	1.20±0.81	3.24±0.77	1.08±0.70
	Control	3.08±0.86	3.28±0.89	3.16±0.80	3.36±0.81	3.12±0.83	3.32±0.85
	Test	t=1.13	t=-7.39	t=0.50	t=-9.38	t=0.52	t=-10.14
		p=0.26	p=0.00	p=0.61	p=0.00	p=0.61	p=0.00
VAS-F	Experiment	3.24±1.12	1.32±0.85	3.00±0.95	1.16±0.85	3.12±0.92	0.92±0.49
	Control	2.92±1.15	3.08±1.15	3.16±1.10	3.20±1.11	3.04±0.97	3.16±1.02
	Test	t=0.99	t=-6.14	t=-0.54	t=-7.26	t=0.29	t=-9.82
		p=0.326	p=0.00	p=0.58	p=0.00	p=0.76	p=0.00

Table 4. The Correlation of the post-application VAS-A, VAS-F, VAS-P mean values of the patients.

Scales	VAS-P	VAS-A	VAS-F
VAS-P	-	r=0.751** p=0.000	r=0.718** p=0.000
VAS-A	r=0.751** p=0.000	-	r=0.924** p=0.000
VAS-F	r=0.718 p=0.000	r=0.924** p=0.000	-

** Pearson correlation (r) was used as a parametric correlation test, which measures a linear dependence between two variables.

DISCUSSION

Critically ill patients are admitted to ICU due to a life-threatening disease or sudden and serious changes in their health status.[18] Rapid change of the patient's condition, uncertainty, and the presence of mortality risk, as well as sounds of monitor systems, ventilators, liquid, or drug infusion pumps in the ICU, causes anxiety and fear in the patient.

Therefore, staying in ICU is a very traumatic and frightening experience for the patient. These feelings experienced by the patient can adversely affect many physical parameters and the

perception of pain [24].

In this study, 62% of the patients were male and 38% were female. In similar studies involving critically ill patients, the rate of male and female patients was reported to be 54.4% and 46.6% by Özer et al. (2006) and 51.9% and 48.1% by Gündöndü (2014), respectively, whereas Uysal et al. (2010) have reported that the distribution of male and female patients was equal in their study [25–27]. Considering the diagnoses of patients included in the study, health problems, such as respiratory distress (due to COPD, lung cancer, etc.) and colon-abdominal diseases (colon cancer, etc.) are more common in men in Turkey and the results obtained from this study support this finding [28]. Of the patients, 44% were aged between 44 and 64 years. In a study on critically ill patients conducted by Uçar and Tunçay (2010), the majority of patients were reported to be in the age group between 42 and 67 years; however, in the study conducted by Gündöndü (2014), it was reported that 42.2% of the patients were over 50 years of age [26,29]. In a study by Uysal et al. (2010), the mean age of the patients was 55 and the rate of geriatric patients (>65 years) was 38.0% [27]. Özer et al. (2006) reported the mean age of the patients as 57.8±17.5 years in their study [25]. The results of this study are compatible with the literature. According to the Turkey Demographic and Health Survey (TDHS), chronic diseases start in middle age and above in Turkish population, and therefore, the complications due to such diseases and requiring ICU indication develop during this period, and in consequence higher need for intensive care and hospitalization to these services in middle-aged and advanced-aged patients are expected [30].

In the present study, 90% of the patients were married. Gündöndü (2014) reported that 71.8% of patients were married [26]. The majority of patients included in our study consist of middle-aged and elderly patients. Compatible with TDHS 2013 data, the fact that most of the individuals in this age group are married is a common situation in Turkey[30].

The rate of patients who were primary school graduates was found to be 54%. In their studies, Uçar and Tunçay (2010) and Gündöndü (2014) reported that 50% and 53.1% of critically ill patients were secondary school graduates, respectively [26,29]. According to the TDHS 2013 data, the majority of the women (51.3%) and men (50.6%) in the age range of 45–49 years in Turkey are primary school graduates and this result is the same for men and women over 50 years of age [30]. Since the majority of the individuals included in the present study are in the age group of 44–64 years, the fact that the majority of them are in primary school graduates is compatible with the statistics related to the educational level in Turkey.

Considering the disease-related characteristics of the patients, 42% were hospitalized in ICU due to respiratory distress. Uysal et al. (2010) and Ceylan et al. (2001) reported that 30% and 29.8% of patients were admitted to the ICU with the diagnosis of respiratory failure and pulmonary disease, respectively, whereas Gürsel et al. (2002) stated that 66% of patients hospitalized in ICU had a diagnosis of chronic obstructive pulmonary disease (COPD) [27,31,32]. Although respiratory distress/failure may result from many reasons, the most important reason is the presence of a disease or condition that impairs lung function. Individuals with respiratory distress/failure are often monitored in the ICU since respiration is a vital function. Lung cancer and COPD are common chronic diseases in Turkey [32].

In this study, the length of stay in the ICU was two days in 74% of the patients. In a study by Uçar and Tunçay (2010), the length of stay in ICU was reported to be three days in 73.6% of the patients and the mean length of stay in ICU was 4.6 days in the study by Keleş et al. (2006) and 4.3 days in the study by Uysal et al. (2010). Treatment is planned according to the diagnosis of the patients and the length of their stay in ICU is affected by this [27,29,33]. In the current study, 90% of the patients were extubated. In their study, Ceylan et al. (2001) showed that 76.8% of the

patients were intubated [31]. Unconscious patients, patients with head trauma, head injury, neurological disease, and delirium that may affect the level of consciousness, and those with impaired perception were excluded from the study.

When repeated measurements of systolic blood pressure, diastolic blood pressure, and pulse parameters were examined, no statistical difference was observed in the experimental group after massage application. However, mean systolic blood pressure, diastolic blood pressure, and pulse values decreased in the experimental group as anxiety, fear, and pain levels of the patients decreased after TM application, whereas these values were observed to increase in the control group which did not receive TM application. Jarianin et al. (2011) reported that there was a decrease in systolic and diastolic blood pressure of the patients following the progressive muscle relaxation exercises [34]. Similarly, Post-White et al. (2003) reported in their study, in which they examined the TM and touch applications in improving cancer symptoms, that high values in all vital parameters (systolic and diastolic blood pressure, respiratory rate, pulse) have decreased to almost normal levels [35].

TM applications, which are applied as a non-pharmacological intervention, have been observed to not affect body temperature. No significant difference was found in the blood glucose levels of the patients in the experimental group following the TM application, whereas the mean values in the experimental group have decreased towards the normal levels.

When the respiratory values were examined, a significant difference was noted in the experimental group after TM application. There was a significant difference between the experimental and control groups in terms of respiratory values in all three measurements made following the application (p<0.05). Respiratory values of patients in the experimental group, who have received massage application, have decreased towards normal values whereas these

values have increased in the control group not receiving TM application. Upon examination of saturation values, parameters related to respiration, a significant difference was found in the experimental group after TM application. There was a significant difference between experimental and control groups in all measurements in terms of saturation values after application (p<0.05). While saturation values increased in the experimental group receiving TM application, the values in the control group not receiving TM application decreased.

Several physiological symptoms occur in the body with the effect of stress hormones when an individual experiences stress or anxiety; blood pressure rises, respiratory rate increases, and blood glucose level rises. Stress hormones decrease as the level of stress and anxiety decreases and in parallel, these findings return to normal levels [36]. In this study, these physical symptoms accompanying anxiety and fear have improved since TM application reduced the anxiety and fear levels of patients. Furthermore, during TM application, breathing exercise was repeated five times following the completion of the application related to each body part and then, TM was applied to another body part. We believe that this is associated with the improvement in the respiration rate and saturation levels of the patients in the experimental group.

There was a significant change in the anxiety level of the patients after TM application. There was a decrease in the mean anxiety levels in the experimental group receiving TM whereas there was an increase in the mean anxiety levels of the patients in the control group. Considering the fear levels of the patients, there was a decrease in the mean fear levels in the experimental group following TM intervention whereas there was an increase in the control group. Fear and anxiety are feelings that accompany each other most of the time. They increase and decrease in direct proportion. In this study, both feelings have decreased in the experimental group. In a study by Henricson (2008) on TM intervention in ICU, a

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International Journal of Traditional and Complementary
Medicine Research

Publisher
Duzce University

decrease was reported in the anxiety levels of the patients receiving TM intervention [5]. In a study conducted by Homayouni et al. (2012), they showed that TM interventions caused a significant reduction in stress levels [6]. Abolhasani et al. (2007) reported that the anxiety levels of the patients decreased by massage [37]. Similarly, Terzioğlu and Gönenç (2012) found that massage and acupressure reduced the state anxiety scores of patients [38]. Cooke (2013) reported that relaxation exercises and biofeedback therapy caused a decrease in anxiety levels among patients with cancer.[39] Jarianin et al. (2011) reported that there was a decrease in anxiety levels of the patients following the progressive muscle relaxation exercises [34]. In a study conducted on cancer patients by Post-White et al. (2003), anxiety levels of the patients following the TM and therapeutic touch interventions were reduced [35]. While the pain levels significantly decreased in the experimental group, no significant difference was noted in the control group that did not receive TM intervention. Soykan and Kumbasar (1999) emphasized the importance of psychiatric approaches in the treatment of chronic pain and reported that therapeutic touch treatments and other psychiatric treatment modalities significantly reduced the pain levels of the patients [40]. Similarly, Post-White et al. (2003) found that therapeutic massage and touch reduced pain [35]. In this study, no significant correlation was found between the demographic characteristics (gender, age, marital status, and educational level) and diagnoses with fear, anxiety, and pain levels of patients. Similarly, Şeker (2014) did not find a correlation between the educational level of the participants and their tendency to stress (p>0.05) [41]. In a study by Rattray et al. (2005), no correlation was detected between the age, gender, and length of stay in the ICU, and anxiety and depression levels of the patients[42]. Hintisyan (2009) reported that emotional states did not have a statistically significant correlation with the age, gender, educational level, marital status, occupation,

diagnosis, and length of stay in the ICU [43]. Our results are compatible with the literature. Regardless of gender, age, marital status, and educational level, all patients are affected negatively by the rapid change in their condition, uncertainty, and the presence of mortality risk, as well as sounds of monitor systems, ventilators, liquid, or drug infusion pumps in the ICU. Staying in the ICU is a very traumatic and frightening experience for the patient. We found a statistically significant relationship between the length of stay in the ICU and fear and anxiety levels of the patients in the control group; anxiety and fear levels increased as the length of stay in ICU prolonged (p<0.05). A significant relationship was observed between fear, anxiety, and pain levels of the patients in the experimental group following the intervention. Fear, anxiety, and pain levels of the patients were found to decrease in parallel with each other (p≤0.001). In a study by Henricson (2008) on TM in ICU, TM intervention was reported to reduce anxiety levels of patients staying in ICU [5]. Similarly, Homayouni et al. (2012) found that TM interventions significantly reduced the stress levels of the patients [6]. Similarly, Post-White et al. (2003) found that TM and touch treatments reduced pain [35]. Since therapeutic touch interventions give messages such as closeness, care, trust, courage, sincerity, warmth, empathy, respect, support, understanding, acceptance, and willingness to help, it is an expected result that these practices reduce negative feelings such as fear and anxiety and decrease the perception of pain that increases in parallel with these feelings.

CONCLUSION

Complementary methods such as TM may be used for anxiety, fear and pain treatment of the critically ill patients. Therefore, it should be integrated into routine care of the critically ill patients. Healthcare professionals should be aware of the close relationship between the vital signs of the patients and their fear, anxiety and pain levels. It is suggested to perform TM

regularly in the critical care. It is recommended to provide sufficient number of nurses who can integrate complementary therapies into the time they allocate for routine care. Primary care professionals can play a crucial role to integrate services with a holistic model. Further studies on the effects of therapeutic massage or touch on the critical care patients are needed.

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