

The Effects of Back Massage on the Vital Signs and Anxiety Level of Elderly Staying in a Rest Home

Huzurevinde Yaşayan Yaşlılarda Sırt Masajının Yaşamsal Bulgular ve Anksiyete Düzeyine Etkisi

(Araştırma)

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ABSTRACT

Aim: This is an experimental study carried out to investigate the effect of back massage on vital signs and anxiety level of residents in a rest home.

Method: This research was conducted in a rest home between 1 December 2006 and 10 May 2007 in İzmir, Turkey. The research data were collected using "Elderly Introduction Form" and "the State-Trait Anxiety Inventory". Back massage was applied to the older people at their beds between 18-20 pm three days long for 10 minutes by the researcher. Data analysis was conducted using Repeated Measures one-way ANOVA and paired samples t test.

Results: The mean age of the older people in this research was 73.07 year (Range: 62-85 years), 61.9% were female, 66.7% were widowed, 47.6% graduated from elementary school. It was identified that except body temperature, there was a statistically significant decrease in the vital signs immediately after the back massage, 15-minute and 30-minute afterwards measurements. There was also a statistically significant decrease in level of anxiety after the back massage

Conclusion: Back massage was determined to decrease anxiety level and vital signs, except body temperature, of the elderly individuals.

Key Words: Back massage, vital signs, anxiety level, older people, nurse.

ÖZET

Amaç: Bu araştırma, huzurevinde yaşayan yaşlılarda sırt masajının yaşamsal belirtiler ve anksiyeteye etkisini incelemek amacıyla yapılmış, deneysel bir çalışmadır.

Yöntem: Araştırma, İzmir'deki bir huzurevinde 1 Aralık 2006- 10 Mayıs 2007 tarihleri arasında yürütülmüştür. Araştırmanın verileri, "Yaşlı Tanıtım Formu" ve "Durumluk-Sürekli Kaygı Ölçeği" kullanılarak toplanmıştır. Sırt masajı araştırmacı tarafından 18.00-20.00 saatleri arasında 10 dakika süreyle üç gün yaşlının yatağında uygulanmıştır. Verilerin değerlendirilmesi tekrarlayan ölçümlerde tek yönlü varyans analizi ve iki eş arasındaki farkın önemlilik testi kullanılarak yapılmıştır.

Bulgular: Araştırma kapsamına alınan yaşlıların, yaş ortalaması 73.07 yıl (62-85yaş) olup, % 61.9'u kadın, %47.6'sı ilkokul mezunu, %66.7'si duldur. Araştırma sonucunda, Sırt masajı uygulamasından önce, hemen sonra, 15 dakika ve 30 dakika sonra yaşlıların vücut sıcaklığı dışındaki yaşamsal bulgu değerlerinde istatistiksel olarak anlamlı düzeyde bir azalma olduğu saptanmıştır. Sırt masajı sonrası yaşlıların anksiyete düzeylerinde istatistiksel olarak anlamlı bir azalma olduğu belirlenmiştir.

Sonuç: Sırt masajının; yaşlıların vücut sıcaklığı dışındaki yaşamsal bulgu değerlerini ve anksiyete düzeylerini azalttığı belirlenmiştir.

Anahtar Kelimeler: Sırt masajı, yaşamsal bulgular, anksiyete, yaşlı, hemşire.

Introduction

In recent years, there has been an increased acceptance of the complementary therapies in the health care system¹. Hill² suggested that the benefits of complementary therapies can be considered as two times more effective than that of conventional therapies. Firstly, complementary therapies can be utilized as psychological healing agents to create a peaceful ambiance in case of a stressful situation. Secondly, they can be used to facilitate the therapeutic relationships between nurse and patient through the development of trust and enhanced communication.

Nursing practices that are complementary to modern technologic medicine are common in the clinical area¹. One of these practices, massage, can be used effectively in nursing to convey concern and at the same time can serve as an important nursing technique. Including touch as an integral part of nursing care, nurses can transfer calming, soothing and reassuring signals to patients. These emotional and social benefits can provide a critical importance in effective nursing care. Back massage is employed in nursing to stimulate circulation in tissues and to create a sedative, relaxing effect for patients. The psychological, mechanical, physiological and reflexive benefits of massage have been confirmed by nurses, physicians and physical therapists. Back massage is thus believed to have positive effects on the recipient of care that go far beyond the physical procedure³.

Holand and Pokorny⁴ determined that the systolic and diastolic blood pressures of 52-88 year old individuals fell when they were given a light back massage for three consecutive days. In the same study, the patients stated that they felt less anxious, calmer, more rested, more physically comfortable and happier after massage. Fraser and Ross³ determined that back massage given to chronically ill elderly individuals in an extended care facility relaxed them and decreased their anxiety level.

Longworth¹³ examined the psychological and physiological effects of Slow Stroke Back Massage, and demonstrated decreased anxiety level and decreased muscle tension in patients. However, there were no significant changes in their heart rate or blood pressure. Fakouri and Jones⁵ study assessed the effectiveness of the SSBM in promoting relaxation, as manifested by physiological responses. They found that blood pressure and pulse decreased, while skin temperature increased. They concluded that back massage relaxes the elderly, since the clients' verbal responses indicated relaxation. Meek⁶ investigated the effects of SSBM on 30 adult hospice clients and found that blood pressure and pulse rate decreased after the intervention and that temperature was increased for 5 minutes afterward. The intervention thus promoted relaxation and proved to be an effective nursing tool.

Although many studies have examined the effect of massage on vital signs and anxiety level, results have been inconsistent. In addition, there have been no studies reported from our country about the effect of back massage on vital signs and anxiety level with vulnerable institutionalized elderly persons. Thus to further geriatric nursing knowledge, it is important to conduct additional research in this area.

Aim

This is an experimental study carried out to investigate the impact of back massage on vital signs and anxiety level of residents in a rest home.

Method

Subjects

This research was conducted in a 300 bed rest home between 1 December 2006 and 10 May 2007 in Izmir, Turkey. Criteria for inclusion were: age 60 years and older; Turkish speaking, alert, oriented, and agreed to participate in the study. Exclusion criteria were: residing in the long term care unit, poor skin integrity, non-verbal, cancer, dementia, and/or a major depressive disorder. Forty-two elderly participants who were within the limitations of the research were included in this research. The same individuals comprised of the experimental and control group.

Instruments

An "Elderly Individual Introduction Form," with seven questions to obtain descriptive information about the elderly staying in a rest home, and a "Recording Form," to record their vital signs, were used. The 20-item State Anxiety Inventory from the State-Trait Anxiety Inventory developed by Spielberger et al.⁷ was used to determine the elderly individuals' level of anxiety. The validity and reliability study of the Turkish version of this study was conducted by Öner and Le Compte⁸. The State-Trait Anxiety Inventory has a total of 40 items in two separate tools. The total score from either tool varies between 20 and 80. Having a high score shows a high level of anxiety. The State Anxiety Inventory determines how the individual feels at that moment under those specific conditions⁸.

Procedure

Back massage that aims relaxation and enjoy for elderly in rest home and hospital consists of effleurage and tapotman are developed by Ersser et al.⁹. Massage was applied to the elderly at their beds between 6.00-8.00 p.m. for three days and for 10 minutes duration by the same researcher who has been educated for back massage. Baby oil was used for lubrication. Vital signs were measured before applying the massage, immediately after the massage and 15 and 30 minutes after the massage. The State Anxiety Inventory was administered before and immediately after the massage was given.

Blood pressure and heart rate were measured with a semi-automatic blood pressure instrument, and the body temperature was measured with a digital thermometer. The blood pressure instrument and digital thermometer were calibrated. The respiratory rate was counted by the researcher.

Ethical considerations

The research was conducted consistent with the ethical principles. Written permission to conduct the research was obtained from the rest home and School of Nursing Scientific Ethics Committee and signed information consent was obtained from the older people to participate in the research.

Statistical analyses

Research data analysis was conducted using Repeated Measures one-way ANOVA and paired samples t test.

Results

It was determined that mean age of the older people were 73.07 years (Range: 62-85 years), 61.9% were female, 66.7% were widowed, 47.6% had elementary school.

Results of this study indicated that there was a significant decrease in the vital signs immediately after the back massage, 15-minute and 30-minute afterwards measurements ($p<0.05$). There was also a statistically significant decrease in level of anxiety after the back massage ($p<0.05$) (Table 1).

Before the back massage, the vital signs and anxiety level of elderly was investigated that although there was no a significant difference in respiratory rate and body temperature values between 1st and 3rd days; in body temperature and anxiety level values between 2nd and 3rd days ($p>0.05$), there was a significant difference among systolic and diastolic blood pressure and heart rate values between the days ($p<0.05$) (Table 2).

Discussion

This study was derived from psychophysiological theories of anxiety, ideas about tactile integration and the principles of massage. According to Selye (1956) and Lader (1967), physiological manifestations of stress or anxiety are triggered by the sympathetic nervous system and can be measured on a continuum as a reflected state of sympathetic

Table 1. Effects of back massage on vital signs and anxiety level in the elderly

Vital Signs and Anxiety	Massage	Day 1	Day 2	Day 3
Systolic Blood Pressure	Before	129.73± 8.08	124.57± 6.59	126.38± 10.65
	After	126.97± 7.65	122.07± 7.20	122.92± 10.52
	After 15 minutes	124.80± 7.10	120.92± 6.89	121.52± 10.79
	After 30 minutes	125.92± 9.37	119.28± 6.73	120.07± 11.38
	F	10648.99	13419.81	5407.36
	p	0.001	0.001	0.001
Diastolic Blood Pressure	Before	81.50±5.59	78.50±4.93	79.71±7.08
	After	79.64±7.65	76.64±4.43	76.83±7.00
	After 15 minutes	77.38±5.61	74.52±4.07	74.85±7.17
	After 30 minutes	77.78±7.88	72.83±3.90	73.04±5.86
	F	6840.40	14116.35	5421.60
	p	0.001	0.001	0.001
Heart Rate	Before	88.19±6.14	86.71±6.07	82.71±6.12
	After	85.64±5.95	83.85±6.18	80.83±6.05
	After 15 minutes	84.00±5.61	83.35±6.25	79.35±6.34
	After 30 minutes	84.50±4.49	81.23±6.29	78.61±5.18
	F	10287.06	7727.29	8057.77
	p	0.001	0.001	0.001
Respiratory Rates	Before	22.21±2.73	21.35±2.17	22.23±2.34
	After	21.59±2.36	20.80±2.15	20.45±2.54
	After 15 minutes	20.02±3.06	20.28±2.43	19.57±2.53
	After 30 minutes	21.09±2.80	19.16±2.59	19.14±2.64
	F	3025.87	3653.42	2939.43
	p	0.001	0.001	0.001
Body Temperature	Before	36.77±0.44	36.94±0.51	36.77±0.92
	After	37.06±0.44	37.12±0.49	37.19±0.47
	After 15 minutes	36.94±0.44	37.02±0.51	37.25±0.53
	After 30 minutes	36.97±0.50	37.00±0.54	36.98±0.50
	F	292959.82	217642.48	229219.77
	p	0.001	0.001	0.001
Anxiety level	Before	37.23±5.31	35.28±4.25	35.19±3.44
	After	26.59±5.48	25.83±3.64	27.90±4.13
	t	9.18	27.57	11.78
	p	0.001	0.001	0.001

Table 2. The comparison of vital signs and anxiety level of the elderly before back massage according to days

Vital Signs and Anxiety level	Massage	Day 1*2		Day 1*3		Day 2*3	
		Day 1 X±Ss	Day 2 X±Ss	Day 1 X±Ss	Day 3 X±Ss	Day 2 X±Ss	Day 3 X±Ss
Systolic Blood Pressure	Before	129.73±8.08	124.57±6.59	129.73±8.08	126.38±10.65	124.57±6.59	126.38±10.65
		t=18.262 P=0.001		t=6.498 P=0.001		t=-2.431 P=0.020	
Diastolic Blood Pressure	Before	81.50±5.59	78.50 ±4.93	81.50±5.59	79.71±7.08	78.50±4.93	79.71±7.08
		t=9.032 P=0.001		t=4.918 P=0.001		t=-2.124 P=0.040	
Heart Rate	Before	88.19±6.14	86.71±6.07	88.19±6.14	82.71±6.12	86.71±6.07	82.71±6.12
		t=7.196 P=0.001		t=20.206 P=0.001		t=13.205 P=0.001	
Respiratory Rates	Before	22.21±2.73	21.35±2.17	22.21±2.73	22.23±2.24	21.35±2.17	22.23±2.24
		t=2.735 P=0.009		t=0.090 P=0.929		t=-3.226 P=0.002	
Body Temperature	Before	36.77±0.44	36.94±0.51	36.77±0.44	36.77±0.92	36.94±0.51	36.77±0.92
		t=-3.252 P=0.002		t=-0.054 P=0.957		t=1.668 P=0.103	
Anxiety level	Before	37.23±5.31	35.28±4.28	37.23±5.31	35.19±3.44	35.28±4.28	35.19±3.44
		t=3.313 P=0.002		t= 4.249 P=0.001		t=0.164 P=0.870	

nervous system arousal. Montague (1971) suggests that contact with another person may produce a soothing, homeostatic effect when physiological or general tension is present. Weiss (1979) incorporated neurophysiological and sociophysiological theories into a framework of tactile arousal, suggesting that the effects of touch are experienced as neuromuscular excitations of the body and may be exhibited on a continuum, reflective of central nervous system activity. She further postulated that adequate cognitive and affective awareness in the body must result from transport of a certain level of arousal to the central nervous system³.

Mechanical stimulation of nerve receptors on the surface of the body has an emotionally relaxing and calming effect according to the technique used¹⁰. There is a decreased affect on nerve activity from massage given with light pressure and on a large area such as the back^{3,11}. This is the reason why it is believed that the massage calms and decreases the level of anxiety^{3,12}.

It was hypothesized that after the massage intervention older adults would experience significant lower levels of anxiety and exhibit lower blood pressure, heart rates and respiratory rates.

At the conclusion of the research it was determined that, other than body temperature, there was a statistically significant decrease in the vital signs right after the back massage, 15-minute and 30-minute afterwards measurements ($p < 0.05$). There was also a statistically significant decrease in level of anxiety after the back massage ($p < 0.05$) (Table 1).

These findings were consistent with the study results of Longworth¹³, Fakouri and Jones⁵, Ferrell-Torry and Glick¹⁴, Fraser and Ross³, Meek⁶, Corley, Ferriter, Zeh, and Gifford¹⁵, Holland and Pokorny⁴, Cutshall et al.¹⁶, Jane et al.¹⁷ and Billhult and Matta¹⁸ who found that massage promotes relaxation, comfort and sleep quality. In contrast, some investigators found no significant effects of massage on psychological responses^{12,19}.

Before the back massage, the vital signs and anxiety level of elderly was investigated that although there was no a significant difference in respiratory rate and body temperature values between 1st and 3rd days; in body temperature and anxiety level values between 2nd and 3rd days ($p > 0.05$), there was a significant difference among systolic and diastolic blood pressure and heart rate values between the days ($p < 0.05$) (Table 2). This alteration in the vital signs and anxiety level values of elderly before the back massage was thought that the effect of massage shows immediately after application.

This study suggests that Back Massage is an important nursing intervention for older adults. Because all physiological variables decreased significantly, it is concluded that there is a relationship between back massage and relaxation. The State Anxiety Inventory also indicated a positive physiological reaction to Back Massage. The change in physiological variables is consistent with the findings of other research.

In the meantime, this study has implications for improving nursing care in a rest home. The Back Massage is simple, noninvasive, easy to administer and cost-effective. Back massage is an intervention that produces positive patient outcomes⁴.

Conclusion

Back massage was determined to decrease vital signs, except body temperature, of the elderly individuals. Nurses can take advantage of this easily implemented, non-pharmacologic method of back massage as an independent nursing action that provides the elderly with physical and psychological comfort.

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