

The Effect of Family Empowerment Intervention Through Hand Massage Therapy on Patient's Anxiety in the High Care Unit of Dr. Hasan Sadikin Hospital Bandung

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INTRODUCTION

High Care Unit (HCU) is a treatment unit for patients whose respiratory function, hemodynamics and consciousness are stable but still require strict treatment and monitoring considerations (Ministry of Health of the Republic of Indonesia, 2018). The intensity of services in HCU is lower than in ICU because patients treated in HCU are still at risk of complications but do not require invasive monitoring or invasive support devices before patients return to the usual treatment room.

Abstract

Objective: This study aimed to examine the effect of family empowerment interventions using hand massage therapy on the anxiety levels of patients treated in the High Care Unit (HCU) of Dr. Hasan Sadikin Hospital, Bandung.

Method: A quasi-experimental research design with a one-group pre-test and post-test approach was used. The study involved 32 respondents selected through accidental sampling based on specific inclusion criteria, including patients with stable hemodynamic status and those receiving treatment in a critical care setting for the first time. Data were collected using the State-Trait Anxiety Inventory (STAI) questionnaire to measure anxiety levels before and after the intervention. Data analysis was conducted using the Wilcoxon signed-rank test to assess changes in anxiety levels pre- and post-intervention.

Results: Before receiving the family empowerment intervention through hand massage therapy, the majority of patients (24 respondents or 75.0%) experienced moderate levels of anxiety. Following the intervention, most patients (25 respondents or 78.1%) reported a decrease to mild anxiety levels. Statistical analysis using the Wilcoxon test showed a significant difference between pre- and post-test anxiety scores, with a p-value of 0.000 ($p < 0.005$).

Conclusion: The findings indicate that hand massage therapy provided by family members as part of a family empowerment intervention significantly reduces anxiety levels in patients receiving care in the High Care Unit. This approach may serve as an effective, non-pharmacological strategy to support emotional well-being in critically ill patients.

Keywords: family empowerment, hand massage therapy, patient anxiety, High Care Unit

Data from the World Health Organization (WHO, 2016) shows that the number of critically ill patients is increasing every year. Of the 100,000 people, 9.8-24.6% are critically ill patients admitted to the ICU or HCU. Patients with critical illness who undergo treatment will experience a significant increase in discomfort and stress due to a number of reasons such as environmental and physiological. Factors that contribute to the development of stress in patients in critical care areas include prior treatment experience, pain, anxiety, foreign

environment, disturbed sleep quality and fear (Esposito et al., 2018). Anxiety is the most common thing that patients feel during treatment. Sources of anxiety come from illness, feelings of loneliness, fear of death, the constant noise of medical equipment and the vigilance of medical personnel. Around 70-87% of critical patients experience this (Saparudin, Armiyati en Khoiriyah, 2020). The condition of a critical patient can change at any time, so the family is brought closer to the patient in such a way as to empower the family. The family can be more aware of the patient's needs, recognize their shortcomings and provide assistance to solve them (Harris et al., 2019). Nurses can explain family empowerment as giving families the opportunity to care for a sick loved one. Families can show their concern and contribute to the actions taken by visiting the patient and helping to overcome problems, conveying or receiving information, providing support or choices (Alldila, Imallah en Masitoh, 2021). Non-pharmacological treatments offered to anxiety sufferers include relaxation techniques, distraction, massage, music therapy, touch therapy, acupuncture, acupressure and breathing techniques and family presence. Hand massage, also known as a simple massage movement that makes you feel comfortable, is one of the massage techniques that can be used to overcome anxiety. Hand massage can also reduce pain and anxiety because it makes you feel more relaxed (Pramesti, Arso en Nandini, 2020). The act of Massage can stimulate increasing the hormone oxytocin and lowering the hormone adrenocorticotrophin (ACTH) in humans (Sitompul, 2017). Hand massage therapy with therapeutic touch can reduce anxiety and increase comfort (Arslan et al., 2019).

METHODS

Study Design

This research is a type of quasi-experimental research, and the design used is pre-test post-test one group.

Intervention

Researcher first make modules and videos

about hand massage therapy as a guide in carrying out interventions. Researcher also prepared supporting equipment such as massage oil, washlap, warm water, towel, handrub and gloves.

Sample

Sampling in this study used accidental sampling technique, namely sampling by chance, or anyone who met the research by chance and included in the non-probability sampling method. The sample of this study were patients in the High Care Unit of Dr Hasan Sadikin Hospital Bandung. The sample is part of the population taken for research. The estimated sample size was calculated with G-Power software version 3.1.9.4, with the calculation settings, namely Test Family F-test, Statistical test Wilcoxon signed-rank test (one sample case), α err prob = 0.05, Effect size $f = 0.5$, Power ($1 - \beta$ err prob) = 0.8, the minimum estimated sample was 28. The number of samples in this study was 32 respondents.

Inclusion criteria included patients with compos mentis consciousness with GCS 15, patients with haemodynamics / vital signs within normal limits, patients who are undergoing treatment for the first time in the critical area room and are treated for at least 2 x 24 hours in the HCU, patients without trauma in the hand area, patients and families do not have hearing and vision impairment, the patient's family was waiting for the patient at 2 x 24 hours when the study was conducted and The family waiting for the patient is 18-55 years old.

Instrument

The research instrument used was State-Trait Anxiety Inventory (STAI) questionnaire. STAI was developed by Charles Spielberger (1983). STAI has 4-point Likers scale that ranges from 1 (do not feel) to 4 (strongly feel). This measuring instrument has 20 question items with a minimum score of 80 and maximum score of 80. Respondents are scored on the score: 20-39 mild anxiety, 40-59 moderate anxiety, and 60-80 severe anxiety. Previous questionnaires from STAI have been examined for validity and reliability (Mcdowell, 2006). With an intervals validity value of 0.88 and

reliability test with alpha values of 0.93 and 0.91, it shows strong strength.

Procedure

Pre-test was conducted on patients by conducting questions and answers according to the respondent characteristics questionnaire and filling out the STAI anxiety questionnaire provided by the researcher. After pre-test, The family is taught about hand massage techniques with module guides and videos. The Data processing is made using SPSS version 25 which is then presented in the form of numbers and tables. Univariate analysis was conducted to determine the frequency distribution of respondents' characteristics. Anxiety scores before and after the intervention were also analyzed to determine the frequency distribution, mean, standard deviation, minimum, maximum. Furthermore,

family then practiced the hand massage technique for 10 minutes. Hand massage therapy intervention was given by the family to the patient for 2 days with 4 interventions given at the time of the patient's visit around 11 and 17 o'clock. After that, a post test was carried out by giving a STAI anxiety questionnaire to the patients 30 minutes after the last intervention was given.

Data Analysis

bivariate tests were carried out by conducting a normality test of the results of anxiety scores before and after the intervention. The results of the normality test showed that the data were not normally distributed, so a non-parametric test (Wilcoxon) was used to determine the effect of the intervention on patient anxiety.

RESULTS

Table 1 Frequency Distribution of Respondent Characteristics (n=32)

Variable	Category	Frequency (F)	Percentage (%)
Age	18–25 years	7	21.9
	25–45 years	8	25.0
	>45 years	17	53.1
Gender	Male	10	31.2
	Female	22	68.8
Education	Elementary School	9	28.1
	Junior High School	6	18.8
	Senior High School	10	31.2
	University	7	21.9
Physical Condition	Post-operation	27	84.4
	Non-operative	5	15.6
Diseases Suffered	Cancer / Tumor	15	46.9
	Post SC (PEB, fetal emergency, placenta previa)	5	15.6
	Trauma (femur fracture, costae fracture, moderate HI)	6	18.8
	Respiratory illness (COPD, pneumonia)	3	9.4
	Myeloradiculopathy	2	6.2
	Other (e.g., snake bite)	1	3.1
Length of Stay	< 7 days	21	65.7
	7–14 days	10	31.2
	>14 days	1	3.1
Experience in Other Treatment Rooms	Ever treated elsewhere	20	62.5
	Never treated elsewhere	12	37.5
Total	—	32	100.0

Based on table 1, it shows that the characteristics of the respondents collected include age, gender, education level, physical condition, disease suffered, length of treatment and previous experience in being treated in other rooms. The characteristics based on the age of most respondents >45 years old are 53.1%. Romadoni research (2018) stated that 60% of patients who were treated in critical areas were in the range of 41-65 years and Nugroho et al (2022) research that 43% of patients with late adulthood experienced treatment in critical areas. Increasing age causes physiological decline and increases infectious diseases and a decrease in immunity so that it is susceptible to infection (Fitri, Amalia & Juanita, 2022). Maturity or maturity of an individual will affect a person's coping ability, so that more mature individuals have greater adaptation to anxiety than younger age (Vellyana et al, 2017).

Based on gender, 68.8% of the patients treated were female. The results of a similar study show that female subjects are treated more in critical areas than men, which is 61.3% (Sari, Walandani & Setyaningsih, 2022). Women have higher levels of anxiety than men. This is because women are able to produce hormones that cause stress when experiencing anxiety, especially because they are seriously ill (Hindarto, 2018). Less than half of the respondents, namely 31.3 percent, have a high school education. Education will affect the way individuals behave, make decisions, solve problems and the way a person assesses stressors (Muhafilah & Saputri, 2018). The higher a person's education, the more experience they have, so that they are more prepared to overcome problems that arise (Narulita, 2019). Almost all of the respondents had postoperative physical conditions as many as 27 respondents (84.4%) and almost half of the respondents had basic diseases such as Cancer/tumor, namely 15 people (46.9%). Illness is one of the factors that cause anxiety. A person who is suffering from a disease will be more likely to experience anxiety than a person who does not have a disease. Patients suffering from cancer are included in the category of

patients suffering from critical illnesses (Fatmadona, 2013). Admission to the critical care unit is considered the safest and most effective component for the treatment of life-threatening complications postoperatively (Park & Suh, 2018).

More than half of the respondents were treated < 7 days, as many as 21 respondents (65.6%). Research by Suparmi & Saragih (2017) shows that the length of patient treatment in the critical care area is >5 days. Patients who are treated in HCU or critical care areas come in sudden and unplanned, critical illnesses and the severity of the disease that causes long treatment, thus causing worry and anxiety (Gunawan, 2015). The longer the patient is treated, the more anxiety levels the patient and his family will have about the problem of the disease (Saragih & Suparmi, 2017). More than half of the respondents had been treated in another room as many as 20 respondents (62.5%). The patient's initial experience in treatment determines the individual's mental state later in life. If the experience about treatment is lacking, it tends to affect the increase in anxiety when facing the next treatment action (Nurwulan, 2017). Patient anxiety often appears in patients who have not been treated before. The presence of patients in critical care areas is perceived negatively by patients (Saragih & Suparmi, 2017).

Table 2 Overview of Patient Anxiety Before and After

Anxiety	Before		After	
	F	%	F	%
Mild	5	15,6	25	78,1
Moderate	24	75.0	7	21,9
Severe	3	9.4	0	0
Total	32	100	32	100

Based on table 2, it shows that most of the respondents had moderate anxiety before being given family empowerment intervention through hand massage therapy in the High Care Unit Room of Dr. Hasan Sadikin Hospital

Bandung, which was 24 respondents (75.0%) and most of the respondents had mild anxiety after being given family empowerment intervention through hand massage therapy in the High Care Unit Room Dr. Hasan Sadikin Bandung Hospital was 25 respondents (78.1%).

Table 3 Average anxiety of patients before and after

Anxiety	Mean (\pm SD)	Min-Max
Before	45.28 (\pm 7,270)	35-67
After	34.91 (\pm8,173)	23-58

Based on table 3 of the 32 subjects observed, the average patient anxiety before the intervention was 45.28, the SD score was 7.270, the minimum was 35 and the maximum was 67, and the average patient anxiety after the intervention was 34.91, the SD value was 8.173, the minimum was 23, and the maximum was 58.

According to Castillo, Cooke, Mcfarlane & Aitken, 2016, in an anxiety assessment conducted on critical patients, 57% of patients experienced moderate-severe anxiety. Anxiety is a psychological response to intellectual judgment of something dangerous (Stuart, 2019). The high number of patients who experience anxiety in this study can be associated with risk factors that can cause anxiety, There are several factors that cause critical patients to experience anxiety, namely age, gender, length of treatment, previous treatment experience, previous ICU experience and environment and level of knowledge (Saragih & Suparmi, 2017).

According to Carpenito's theory which states that 90% of patients have the potential to experience anxiety. At this level of anxiety, patients feel afraid because they think something disturbing is a threat. Patients will focus on something detailed and specific so that the patient's perception is greatly reduced. At the level of severe anxiety, patients show a fear response (Videbeck,

2018). This has an impact on the weakness of the mind and disturbed feelings as well as disordered attention mechanisms (Robinson & V Ytal, 2013). Anxiety triggers a stress response, stimulating the release of epinephrine and norepinephrine thereby increasing blood pressure and increasing heart rate, cardiac output, and blood glucose levels (Yellen and Davis, 2016).

The family is the closest unit to the patient and is the primary nurse for the patient. The family plays a role in determining the methods or treatments that patients need in hospitals (Kusumaningrum en Noor Asikin, 2016). The influence of the family in its participation determines policies and decisions in the use of nursing services so that the relationship with the family is important. The family plays a very important role in the healing and recovery process of the patient (Morton et al., 2018). The context of family empowerment nursing can be interpreted as nurses providing opportunities for families to provide care to their families who are sick. The family may be involved at the time of presence next to the patient and visits, helping to meet needs, communicate or as a recipient of information, give consent or decisions and contribute to the implementation of actions such as feeding or bathing the patient (Alldila, Imallah en Masitoh, 2021). Nurses can motivate families to be empowered in nursing actions on patients by accompanying, massaging, communicating and caressing. Families are also asked to visit patients twice a day to reduce stress on the family (Pricard & Newcomb, 2015). Family empowerment can reduce patients' anxiety from severe anxiety to moderate anxiety in line with the research of Wulandari & Widayati, 2020, which shows the influence of family empowerment on patient anxiety.

Options for managing fear or anxiety can be through pharmacological or non-pharmacological treatments. Pharmacological drug therapy often has side effects (Abadi et al., 2018), so it is recommended to administer non-pharmacological therapy. One of the non-pharmacological therapies that can be done by

families is hand massage because it has many benefits in reducing anxiety.

The results of Yanti el al's (2021) research show that with the Hand Massage technique, anxiety tends to decrease to a milder level of anxiety and may not be anxious. This suggests that hand massage can have an effect, i.e. lowering anxiety levels. Massaging the hands can help a person control their emotions and relax their body. When the body relaxes, muscle tension decreases, which reduces anxiety (Yuliastuti, 2015).

Table 4 The Effect of family empowerment intervention through hand massage therapy

Anxiety	Mean (±SD)	P-Value
Before	45.28 (±7,270)	0,000
After	34.91 (±8,173)	

Based on table 4 of 32 subjects observed, the average score of patient anxiety before the intervention was 45.28, the average SD score was 7.270, and the patient's anxiety after the intervention was 34.91, the SD value was 8.173. It can be seen that there is a decrease in anxiety from moderate anxiety to mild anxiety. *Wilcoxon p value* test results (0.000 <0.05). This concludes that Ho was rejected and Ha was accepted, so it can be statistically concluded that there is an effect of family empowerment intervention through *hand massage therapy* on the anxiety of patients treated in the *High Care Unit of Dr. Hasan Sadikin Hospital Bandung*. The findings in this study are in line with previous research that states that *hand massage* has been proven to be effective in reducing anxiety levels. *Hand massage* increases comfort levels and lowers anxiety levels with statistically significant results with a p-value < 0.05 (Arslan & Yucel, 2022). There was a difference in the level of anxiety before and after hand massage in the intervention group with a value of p=0.000 and no difference in anxiety levels was found in the

control group with a value of p=0.187 (Brand, Munroe, & Gavin, 2018). Based on the findings in this study, the researcher assumes that hand massage is effective and able to reduce the anxiety level of respondents because hand massage can affect the performance of body systems that play a role in a person's anxiety level, namely releasing the release of relaxation hormones so that patients feel calm and the feelings of anxiety felt can decrease.

DISCUSSION

The results of this study indicate that family empowerment interventions through hand massage therapy have a significant impact on reducing patient anxiety levels in the High Care Unit (HCU) of Dr. Hasan Sadikin Hospital, Bandung. Prior to the intervention, the majority of patients (75%) experienced moderate levels of anxiety, and 9.4% experienced severe anxiety. Following the intervention, 78.1% of patients reported only mild anxiety, with no participants remaining in the severe category. The Wilcoxon test further confirmed this finding with a p-value of 0.000 (<0.05), indicating a statistically significant difference in anxiety levels before and after the intervention.

These findings are consistent with the study by Arslan & Yucel (2022), which demonstrated the effectiveness of hand massage in reducing anxiety, showing a statistically significant p-value of <0.05. Likewise, Brand, Munroe, and Gavin (2018) found a significant decrease in anxiety levels in the intervention group (p = 0.000), reinforcing the value of massage therapy in clinical care settings.

The mechanism by which hand massage reduces anxiety may be attributed to the activation of the parasympathetic nervous system. Massage helps stimulate relaxation responses in the body, reducing muscle tension and promoting the release of endorphins and other neurochemicals that contribute to a feeling of calm and comfort. Yuliastuti (2015) also noted that hand massage can help patients regulate emotions, reduce muscle stiffness, and ultimately lower psychological stress.

The findings also align with Carpenito's theory, which states that up to 90% of hospitalized patients have the potential to experience anxiety. Patients in critical care units, especially those with postoperative conditions or chronic illnesses such as cancer, are highly vulnerable to psychological distress. In this study, a substantial number of respondents were postoperative patients (84.4%), and nearly half (46.9%) had cancer or tumors. These physical conditions, combined with the environment of a high-dependency care unit, likely contributed to elevated anxiety levels.

Demographically, the majority of participants were over 45 years old (53.1%), with more females (68.8%) than males. Previous research by Vellyana et al. (2017) and Hindarto (2018) has shown that age and gender are influential factors in anxiety response. Older individuals tend to experience a natural physiological decline that may impact immune function and increase anxiety, especially when faced with hospitalization. Additionally, women are generally more prone to anxiety due to hormonal and psychological differences, particularly in the face of critical illness.

Education level was also found to influence anxiety. Patients with higher education levels generally exhibit better coping mechanisms, decision-making skills, and understanding of their medical conditions (Muhafilah & Saputri, 2018). In this study, 31.2% of respondents had completed senior high school, while 28.1% had only elementary education. Lower education levels may correlate with limited health literacy, potentially contributing to increased anxiety when facing unfamiliar clinical environments.

Another critical finding was the influence of prior treatment experiences. Patients who had previously been treated in other hospital rooms (62.5%) reported less anxiety compared to those without such experience. This supports the theory that familiarity with hospital procedures and environments can reduce anxiety (Nurwulan, 2017; Saragih & Suparmi, 2017). In contrast, those with no prior exposure to hospitalization may perceive critical care as overwhelming and distressing, leading to elevated anxiety levels.

Importantly, the role of the family as a source of psychological support was emphasized in this study. The presence and involvement of family members during hospitalization play a significant role in the emotional well-being of patients. Hand massage therapy performed by family members not only provides physical comfort but also reinforces emotional bonding and a sense of security for the patient. Kusumaningrum & Noor Asikin (2016) and Morton et al. (2018) highlighted the vital role families play in patient care, decision-making, and recovery. Empowering families to participate in therapeutic activities like hand massage strengthens their role and can lead to more positive health outcomes.

This intervention aligns with non-pharmacological strategies in anxiety management, which are increasingly favored due to the side effects associated with pharmacological treatments (Abadi et al., 2018). Non-invasive, simple, and cost-effective methods like hand massage offer an accessible solution that can be implemented in various healthcare settings, particularly in resource-limited environments.

Implication for Nursing Practice

These findings highlight the importance of incorporating family-centered care in clinical settings, especially in high-dependency units. Nurses should be encouraged to train and involve family members in basic supportive care techniques such as hand massage. This can reduce patient anxiety, foster therapeutic communication, and promote holistic healing. Additionally, health professionals should assess patient anxiety regularly and provide early interventions using both pharmacological and non-pharmacological methods.

CONCLUSIONS

The results of this study indicate that family empowerment intervention through hand massage therapy is effective in reducing patient anxiety in the high care unit room. Family empowerment through hand massage therapy is expected to be applied as one of the non-pharmacological efforts to reduce patient

anxiety that can be applied at Dr. Hasan Sadikin Hospital Bandung in an effort to improve the health status of patients in the high care unit

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