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Effect of the Affective Stimulation-Based Family-Centered Integrated Spiritual Support on Psychological Aspects of Acute Coronary Syndrome Patients

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Authors
Mulyana B.[1*] *MSc*
Trisyani Y.[2] *PhD*
Nuraeni A.[2] *MSc*
Astrada A.[1] *DHSc*
Pamungkas R.A.[1] *PhD*
Ekawaty D.[3] *MSc*
Wariani W.[4] *SpKMB*

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[1]Department of Nursing, Faculty of Health Sciences, Esa Unggul University, Jakarta, Indonesia

[2]Department of Critical Care Nursing, Faculty of Nursing, Padjadjaran University, Bandung, Indonesia

[3]Department of Education and Training, Tarakan Hospital, Jakarta, Indonesia

[4]Department of Education and Training, Wishan Medika Clinic, Jakarta, Indonesia

***Correspondence**
Address: Jl. Arjuna Utara No.9, Duri Kepa, Kec. Kb. Jeruk, Kota Jakarta Barat, Daerah Khusus Ibukota Jakarta 11510, Indonesia. Postal Code: 11510
Phone: +081287752347
Fax: -
budimulyana@esaunggul.ac.id

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ABSTRACT

Aims There are approximately 422.7 million cases of acute coronary syndrome worldwide. This study assessed the effect of affective stimulation-based, family-centered integrated spiritual support on relieving chest pain and anxiety in patients with acute coronary syndrome in the coronary intensive care unit.

Materials & Methods This pilot study employed a quasi-experimental pre- and post-test design with a non-equivalent control group. Thirty respondents were selected using consecutive sampling techniques and divided into the experimental (n=15) and control (n=15) groups. The experimental group received routine care along with the program, while the control group received only routine care. The Numeric Pain Rating Scale was used to measure chest pain, and the Visual Analog Scale for Anxiety was used to assess anxiety. Data analysis began with a normality test using the Shapiro-Wilk test, followed by a homogeneity test using Levene's and Chi-square tests. Univariate analysis was conducted using frequency, percentage, mean, and standard deviation, concluding with a paired t-test, an independent t-test, Cohen's d, and analysis of covariance.

Findings Most respondents were males diagnosed with non-ST-elevation myocardial infarction. There was a statistically significant difference in the mean pain and anxiety scores between the pre-test and post-test in each group. There was a significant difference between the experimental and control groups regarding the average patient anxiety score, with an effect size of 0.807, but no significant difference in the average patient pain score.

Conclusion Routine care combined with affective stimulation-based family-centered integrated spiritual support results in a better average pain and anxiety score.

Keywords Acute Coronary Syndrome; Anxiety; Chest Pain; Coronary Care Unit; Psychological Well-Being

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Introduction

Approximately 422.7 million cases of acute coronary syndrome (ACS) are reported globally, and 17.92 million deaths from ACS are projected to increase to 23.3 million by 2030 [1].

The effects of critical patients with ACS can be categorized into two types, including immediate effects, such as chest pain [2], and indirect effects, which include physical issues (weakness, immobility, muscle stiffness, and pain) as well as psychological issues (pain, hopelessness, fear, grief, feelings of isolation, disturbed sleep, discomfort, and anxiety) resulting from the critical care services required for ACS patients. Furthermore, pain and anxiety are intensified by invasive procedures, separation from family, and the introduction of a new critical care team [3-5].

Anxiety and pain are psychological issues that are among the most common and detrimental to heart health [6]. Persistent pain and anxiety experienced by patients can impede the healing process and survival in conditions such as infarction, endothelial dysfunction, myocardial ischemia, plaque rupture, thrombosis, and malignant arrhythmias. Additionally, a decrease in bodily resistance can occur in patients, increasing the risk of death due to hormonal imbalances caused by stress, including elevated levels of cortisol, thyroid hormones, and sympathetic nerve activity, which in turn raises the body's metabolism. Uncontrolled metabolism due to pain and anxiety can further hinder the healing process. Moreover, in patients with ACS, oxygen consumption must be carefully regulated, as the oxygen supply to the heart is limited, which inhibits the heart's ability to pump blood effectively without adequate oxygen [7].

Pharmacological therapies can alleviate or eliminate pain and anxiety in individuals with ACS. However, these therapies may not always provide optimal pain relief, and it is impossible to separate the development of side effects from ongoing pharmacological use. Therefore, non-pharmacological therapy (as an additional treatment) is necessary to reduce or eliminate pain [8]. Non-pharmacological treatments for pain and anxiety can include relaxation techniques, hypnotherapy, music therapy, massage, dhikr, and family-based interventions [9-11].

Since pain and anxiety are subjective responses of patients, the interventions should focus on changing the patient's emotional response to these feelings. Family-centered affective stimulation is an intervention carried out by family members on patients, based on two main aspects: sensory and affective. This intervention is conducted repeatedly to provide encouragement, motivation, and enthusiasm to patients, helping them change their perception of the pain and anxiety they experience. The repetition of certain words or phrases that incorporate elements of faith and belief can elicit a stronger relaxation response than relaxation techniques that lack these elements. The patient's spiritual beliefs hold a calming significance, as they serve as a source of individual coping that aids the patient in adapting to the stressors they encounter [12].

The difference in the effects of stimulation provided by familiar versus unfamiliar individuals is significant. Patients may receive and respond to sensory and affective stimuli differently depending on whether the stimulation comes from someone they know or not. Sensory and affective stimulation provided by family members is considered more effective than that provided by strangers due to the continuity and familiarity of the relationship. Conversely, constant stimulation from unknown individuals can hinder the stimulation process [12].

According to research by Goldfarb et al., Zuo *et al.*, and Mulyana *et al.*, there are five elements of family and patient involvement. The findings indicate that family and patient involvement increases awareness and cognition in comatose patients with traumatic brain injury, improves the quality of life, enhances psychological well-being, boosts patient and family satisfaction, decreases pain intensity and anxiety, and shortens ICU length of stay [13-16].

Abbasi *et al.* [12], Salmani *et al.* [17], and Zuo *et al.* [14] utilizing a family-centered affective stimulation intervention in unconscious patients due to brain injury, have assessed outcome values, such as GCS and delirium. However, they have not addressed its effects on conscious patients, particularly regarding the pain and anxiety scales. Therefore, in the current study, we aimed to examine the impact of affective stimulation-based, family-centered, integrated spiritual support on chest pain and anxiety among ACS patients in the coronary intensive care unit (CICU).

Materials and Methods

Research design

This pilot study employed a quasi-experimental pre- and post-test design with a non-equivalent control group.

Sample size and setting

This research involved 30 patients diagnosed with ACS in the CICU and was conducted from June 15, 2021, to July 21, 2021. Patients were assigned to either the experimental group (n=15) or the control group (n=15) based on the inclusion criteria using a consecutive sampling technique. The inclusion criteria included patients aged over 21 years with a primary diagnosis of ACS and mild to moderate chest pain, who were alert, undergoing pharmacological therapy with or without percutaneous coronary intervention (PCI), and able to communicate. Additionally, the family inclusion criteria specified

that nuclear family members should be aged between 18 and 55.

The sample size was calculated based on a comparative study of two means by Salmani *et al.* [17]. The researchers hypothesized that the experimental group would differ from the control group, with a minimal difference in pain scores considered significant at five. According to the literature, the combined standard deviation of the pain scale was 2.85. Considering the type I error of 5% and the type II error of 20%, the number of samples required was 11 per group. An additional 30% was added to account for potential dropout events. Thus, the total sample size for this study was 15 respondents in each group [12, 17]. Calculating using G*Power 3.1.9.7, the power was found to be 0.4. All patients who met the inclusion criteria entered the study, resulting in a dropout rate of 0%.

Affective Stimulation-Based Family-Centered Integrated Spiritual Support

The program was developed based on patient- and family-centered care and spiritual support models [18-20]. Patients in the experimental group received routine care in the CICU, accompanied by a four-session participatory program over two days. The program comprised an assessment of current practices, measuring the patients' chest pain and anxiety, sharing experiences and challenges related to the family-based program, goal setting for teaching patients' family members how to perform the program, accompaniment during the practice of the program, and measuring the patients' chest pain and anxiety and evaluating the program. The intervention was administered by family members and was blinded to the patients and healthcare providers, including nurses in the CICU. The outcomes were measured by CICU nurses who were blinded to the intervention (Table 1).

Table 1. The intervention provided for the experimental group

Session	Strategy	Main activities	Multidisciplinary
First	Assessment of current practice, pre-test, and sharing experience The first day for 30 minutes	-Assessment of patients' demographic data and their family member -Assessment of current practice in applying the program -Assessment of patient's chest pain and anxiety -Sharing experience regarding practicing the family-based program	-Researcher -Research assistant -Head nurse -Nurses
Second	Goal setting The first day for 15 minutes	-Teaching patients' family members how to use the program	-Researcher -Research assistant
Third	Practicing the program The first day and second days for 15 minutes	-Accompaniment on practicing the program	-Research assistant -Head nurse
Fourth	The second day for 15 minutes	-Assessment of patient's chest pain and anxiety -Evaluation of the program	-Researcher -Research assistant -Head nurse

Participants in the control group received only routine treatment according to CICU guidelines. The routine care provided by healthcare providers in the CICU included standard CICU care and standard medication for ACS patients.

Research tools

The information from respondents was gathered using three questionnaires, including the Socio-Demographic and Health Information (SDHI), the Numeric Pain Rating Scale (NPRS), and the Visual Analog Scale for Anxiety.

Socio-Demographic and Health Information (SDHI) Scale

This Scale was used to measure socio-demographic and health-related information. An interview questionnaire was employed to evaluate the SDHI.

Numeric Pain Rating Scale (NPRS)

The NPRS was used to assess the patient's chest pain. It is commonly used in hospitals and has become a standard tool in clinical settings. The scale consists of a horizontal line with a starting point marked zero, indicating "no pain," and an endpoint marked ten, indicating "worst possible pain." Respondents were asked to rate their pain from zero to ten, selecting the number that best represented their pain intensity. Pain is typically classified as mild when it falls between one and three, moderate between four and six, and severe when it reaches even ten [21, 22].

Visual Analog Scale for Anxiety (VAS-A)

The VAS-A was used to assess a patient's anxiety, which is frequently utilized in both clinical settings and research. This instrument was also employed to study ACS patients pre- and post-surgery. Furthermore, it did not interfere with the patient during the assessment, as the use of oxygen must be limited in ACS patients. This scale consists of a horizontal line with a starting point marked 0mm, indicating "not at all anxious," and an endpoint marked 100mm, indicating "very anxious." Respondents were asked to rate their anxiety from 0 to 100, selecting the point that best represented their feelings [23, 24].

Statistical analysis

We used the normality test based on the Shapiro-Wilk method, while the homogeneity test employed the chi-square and Levene tests. Data for categorical descriptions were presented using frequency and percentage, while numerical data were reported using the mean and standard deviation. Since the data were normally distributed ($p>0.05$) and homogeneous ($p>0.5$), the subsequent analyses for this research included a paired t-test, an independent

t-test, and Cohen's d. The analysis then proceeded using an analysis of covariance. The data were analyzed using the intention to treat (ITT) method with SPSS 23.

Findings

Socio-demographic and health-related information

With an average age of 53.74±6.07 years in the experimental group and 56.73±9.49 years in the control group, male participants comprised the largest percentage of the experimental group (66.7%) and the control group (60.0%). In the control group, 53.3% of participants had completed primary school, while 46.6% in the experimental group had the same educational level. Some participants in the experimental group (40.0%) and the control group (26.6%) were employed as private employees. These results also indicate that the data variation between the experimental and control groups is homogeneous ($p<0.05$).

Health-related information indicated that more than half of the participants were diagnosed with STEMI (53.3%) in the experimental group and non-ST-elevation myocardial infarction (NSTEMI) (53.4%) in the control group. Most participants in the experimental group (73.3%) and the control group (53.3%) had a smoking history, with no comorbid diseases (experimental and control groups=86.6% vs. 80.0%, respectively). All participants received standard ACS medications (100%), while only 60.0% in the experimental group and 67.0% in the control group received usual anxiety medications. The average troponin T levels were 274.86±121.44ng/L in the experimental group and 198.53±125.65ng/L in the control group, with infarct locations most commonly occurring in the inferior, lateral, and superior regions of the heart (Table 2).

Table 2. Sociodemographic characteristics and health-related information (n=30)

Parameter	Experimental group (n=15)	Control group (n=15)	p-Value
Sex			
Male	10(66.7)	9(60.0)	0.705**
Female	5(33.3)	6(40.0)	
Education			
Primary school	7(46.6)	8 (53.3)	
High school	4(26.7)	4(26.7)	0.901**
Academic	4(26.7)	3(20.0)	
Occupation			
Unemployed	1(66.6)	2 (13.3)	
Housewife	4(26.6)	4 (26.6)	
Governmental	0(0.0)	1 (66.6)	0.785**
Non-governmental	6(40.0)	4 (26.6)	
Entrepreneur	4(26.6)	4 (26.6)	
Type of acute coronary syndrome			
Unstable angina pectoris (UAP)	1(6.7)	2(13.3)	
Non-ST-elevation myocardial infarction (NSTEMI)	6(40.0)	8(53.4)	0.519**
ST-elevation myocardial infarction (STEMI)	8(53.3)	5(33.3)	
Risky behavior			
Smoking	11(73.3)	8(53.3)	
Obesity	1(6.7)	1(6.7)	0.520**
None	3(20)	6(40)	
Comorbidity			
Diabetes mellitus	1(6.7)	1(6.7)	
Hypertension	1(6.7)	2(13.3)	0.830**
None	13(86.6)	12(80)	
Medication for acute coronary syndrome			
No	0(0.0)	0(0.0)	-***
Yes	15(100.0)	15(100.0)	
Medication for anxiety			
No	6(40.0)	5(33.0)	0.705**
Yes	9(60.0)	10(67.0)	
Percutaneous coronary intervention			
No	9(60.0)	10(67.0)	0.705**
Yes	6(40.0)	5(33.0)	
Infarct location			
Inferior	4(26.7)	1(6.7)	
Anteroseptal	2(13.3)	2(13.3)	
Lateral	4(26.7)	5(33.3)	
Anterolateral	3(20.0)	1(6.7)	0.411**
Posterior	2(13.3)	3(20.0)	
Anterior	0(0.0)	2(13.3)	
Normal	0(0.0)	1(6.7)	
Troponin T levels (ng/L)	274.86±121.44	198.53±125.65	0.785*

*Levene's test.
**Chi-square test.
***Could not be tested.

Comparison of the mean scores of pain and anxiety within the groups

The mean score of pain ($p<0.05$) and anxiety ($p<0.05$) decreased significantly in both the experimental and control groups. The most significant reductions in pain and anxiety scores were observed in the experimental group (Table 3).

Table 3. Mean scores of pain and anxiety within the groups

Variable	Pre-test	Post-test	t	df	p-Value*
Experimental group					
Pain	4.67±1.05	2.13±0.99	15.33	14	0.0001
Anxiety	48.00±13.20	19.33±11.63	8.91	14	0.0001
Control group					
Pain	4.40±0.99	2.27±1.03	11.12	14	0.0001
Anxiety	42.67±12.23	30.00±14.63	4.46	14	0.001

*Significant at p-value<0.05 from the paired-sample t-test.

Comparison of Mean Scores on Pain and Anxiety Between the Groups

There was no discernible difference in pain scores between the experimental and control groups (p-value=0.721). In contrast, a significant difference was observed in anxiety scores between the experimental and control groups (p-value=0.035; effect size=0.807; Table 4).

Table 4. Means scores of pain and anxiety between the groups

Variable	Experimental group	Control group	t	df	p-Value*	d**
Pre-test						
Pain	4.67±1.05	4.40±0.99	-0.718	28	0.478	-
Anxiety	48.00±13.20	42.67±12.23	-1.15	28	0.261	-
Post-test						
Pain	2.13±0.99	2.27±1.03	0.36	28	0.721	-
Anxiety	19.33±11.62	30.00±14.64	2.21	28	0.035	0.807

*Significant at p-value<0.05 from the independent-sample t-test.
**Cohen's d.

Effect of the intervention on mean anxiety scores of patients

After controlling for pharmacological therapy for anxiety as a confounding variable, the average unadjusted and adjusted anxiety score in the experimental group was 19.3±11.62, while in the control group, it was 30±14.64. There was no difference in anxiety scores before and after controlling for pharmacological therapy for anxiety (Table 5).

Table 5. Effect of the intervention on the mean patients' anxiety score

Model	Groups	Mean anxiety score	Difference (95%IC)	p-Value
Unadjusted	Experimental group	19.3 (12.3-26.3)	19.77 (0.78-20.55)	0.035*
	Control group	30 (23-37)		
Adjusted	Experimental group	19.3 (12.3-26.3)	19.77 (0.78-20.55)	0.035**
	Control group	30 (23-37)		

*Independent-samples t-test, **ANCOVA.

Discussion

This study examined the impact of affective stimulation-based, family-centered, integrated spiritual support on chest pain and anxiety among ACS patients in the CICU. The findings showed that men were more likely to have ACS. A previous study also indicated that males are at an increased risk of ACS due to having lower levels of the hormone estrogen compared to females. Estrogen helps maintain the elasticity of blood vessels; smoking habits and stress, which are more prevalent in males, further increase the risk of ACS [25-28].

Most of our ACS patients were elderly. ACS tends to be more common among older individuals [25, 29-31]. Age is a significant risk factor for ACS; as a person ages, the elasticity of blood vessels changes, ultimately affecting heart function. Additionally, the formation of atherosclerosis increases fivefold between the ages of 40 and 60 [32]. Furthermore, Overbaugh stated that as a person ages, the risk of experiencing disorders of vital organs, such as the cardiovascular, respiratory, and neurological systems, also rises [33].

Most patients were diagnosed with NSTEMI and STEMI, presenting with high troponin T levels and a history of smoking. Previous studies also have reported the majority of respondents being diagnosed with STEMI with a history of hypertension and smoking, both in the past and prior to hospital admission [29, 30, 34]. This finding is supported by research from Trisnaamijaya *et al.*, indicating a relationship between smoking behavior and the incidence of ACS [35]. Sagala *et al.* also noted that patients with NSTEMI and STEMI can exhibit troponin T levels ranging from 100 to 2000ng/L, with the most common locations of infarction being anterolateral [36].

Patients with unstable angina pectoris (UAP) tend to ignore the pain they experience, as the blockage in the arteries has not yet occurred, leading to a decrease in pain when the condition stabilizes. This factor may cause patients not to seek care at health facilities. In contrast, patients with NSTEMI and STEMI experience ischemia and necrosis due to plaque erosion and rupture, resulting in persistent pain even at rest. This factor prompts patients to visit health facilities. Additionally, patients with a history of smoking have a greater risk of developing ACS. Exposure to toxic substances (free radicals) in cigarettes adheres to blood vessels, ultimately damaging the endothelium and reducing the elasticity of blood vessels [7, 25].

Troponin T is one of the protein components in the heart muscle that plays an essential role in muscle contraction. In patients with ACS, damage to heart muscle cells occurs due to a lack of blood flow and oxygen to the heart. This condition results in the lysis or rupture of heart muscle cells, which causes the release of troponin T into the bloodstream. Elevated levels of troponin T in the blood are often used as sensitive and specific biomarkers to detect heart muscle damage [37].

This study found a significantly lower pain and anxiety score in the experimental group. However,

the difference appears to have little to no clinical implications for the patient's pain but does have clinical implications for the patient's anxiety.

Intensive care presents high stressors, particularly for those with ACS [38]. In addition to chest pain, patients experience other issues, such as weakness, immobilization, muscle stiffness, hopelessness, fear, sadness, feelings of isolation, sleep disturbances, discomfort, and anxiety [39]. Pain and anxiety are exacerbated by invasive procedures, separation from family, dependence on mechanical ventilation, and a new critical care team [3-5]. Furthermore, anxiety can be intensified by national regulations that prohibited family visits during the COVID-19 pandemic, contributing to patients' feelings of loneliness and isolation.

In addition to the physical and psychological impact on critically ill patients with ACS, family members often find themselves in confusing environments and experience emotional distress, including anxiety, depression, and feelings of helplessness. This emotional distress arises because family members are anxious about seeing the patient in bed and desire to be close to the patient to provide support [40, 41].

Pain and anxiety are subjective responses experienced by the patient, emphasizing that only the patient can truly feel these sensations. According to Gaol, stress results from an imbalance between physical and psychological demands and the ability to respond. There is a simple model, in which the stress process consists of four interrelated stages: environmental need, perception, response, and behavioral consequences. According to Gaol, interventions should focus on the second stage of the stress process to prevent stress, specifically addressing individual perceptions of environmental demands. Positive perceptions of environmental needs should be fostered to prevent the occurrence of stress [11, 42].

Affective stimulation-based, family-centered, integrated spiritual support is an intervention that family members provide to patients. It is based on two main aspects of sensory and affective, which are repeated to encourage, motivate, and instill enthusiasm, ultimately changing the patient's perception of pain and anxiety. The use of specific words or sentences that are read repeatedly, incorporating elements of faith and belief, elicits a stronger relaxation response than relaxation techniques that focus solely on belief [11, 12, 14, 17].

The patient's beliefs hold calming significance, as spirituality is one of the individual coping resources that patients can utilize to adapt to the stressors they face [43]. Therefore, to achieve optimal results, the affective aspect must include spiritual support [44]. Willemse *et al.* clarify that spirituality encompasses relationships with others, including family members. It is defined as social support, which refers to an individual's perception of being loved, cared for, valued, and recognized as part of a social network. Furthermore, their research explains that social support positively influences a person's physical and mental health. Love and attention from family members and others around participants make them feel more meaningful and valued. Feeling valued serves as a significant source of internal strength for ACS patients. Social support is one of the most effective forms of coping [45].

The crucial aspect is the potential variations in responses to stimuli from known and unknown individuals. In other words, patients may react to sensory and affective stimulation from people they know differently than from those they do not know. The patient's family—those they are most familiar with—should provide sensory and affective stimulation for more meaningful outcomes. Kydonaki *et al.* state that the patient's family is the closest relative with whom they share an emotional connection and maintain constant contact regarding their normal status [46]. However, prolonged exposure to sensory and affective stimulation from unfamiliar individuals can eventually lead to stimulation inhibition [17].

The theoretical and physiological distinction between family-centered and sensory-centered affective stimulation is based on psychological, cognitive, and motivational factors. These aspects can accelerate the healing process by stimulating the parasympathetic nervous system and inhibiting sympathetic nerves, which in turn suppresses the hypothalamic-pituitary axis (HPA) process and the renin-aldosterone-angiotensinogen system (RAAS) process, ultimately reducing pain and anxiety. Simultaneously, the body secretes endorphins that enhance interest, motivation, and pleasure, thereby reducing pain and stress while decreasing metabolism and oxygen consumption [7, 17, 47].

The family plays a vital role in the healing of patients. There are five family duties in the health sector, including recognizing health development disorders, making decisions to take appropriate action, providing care to sick family members, maintaining a favorable atmosphere for health, and sustaining social relations between the family and existing health institutions. According to Kiwanuka *et al.*, patients positively perceive that they are cared for, not left behind in their critical state, and feel calm and comfortable. The influence of family members is that they feel like individuals who benefit their loved ones. Most importantly, the inner and social bonds between patients and family members are maintained even in the worst conditions [48].

Information is one of the primary needs assessed by family members. Doctors and nurses should inform patients about their illnesses, the treatments received, tests performed, required medical care, and the actions of family members to aid in the patient's recovery. This is done to alleviate psychological pressure, facilitate decision-making regarding the patient, and support their needs [49, 50].

The foremost need of critically ill ACS patients is the emotional need to be close to their family members [17]. The American College of Critical Care Medicine strongly advises using a shared decision-making paradigm when communicating with families to achieve patient and family goals [51]. Over the past decade, academies and hospitals have increasingly gravitated toward family-centered interventions and programs in the nursing process to support interaction and bonding between patients and family members, ultimately improving care outcomes [12, 52, 53]. This approach is supported by Florence Nightingale's nursing theory, which emphasizes the significant influence of visitors, family, and friends on the critically ill. To view critical nursing practice holistically, nurses must consider the patient's family [5].

Many non-pharmacological interventions are used to reduce patient pain and anxiety, such as cognitive behavioral therapy (CBT), mindfulness and relaxation techniques, and standard family support programs. CBT is a well-established non-pharmacological approach for managing anxiety, focusing on changing thought patterns to influence behavior and emotional states [54]. Our intervention differs by incorporating spiritual support and family involvement, which can enhance emotional support and provide comfort through familiar and culturally relevant practices.

Mindfulness and relaxation techniques, such as meditation, guided imagery, and progressive muscle relaxation, are commonly used to reduce pain and anxiety. These approaches are effective in promoting relaxation but may require significant patient engagement and adherence [55]. Our family-centered approach leverages the existing support system, which may enhance compliance and effectiveness, especially in a hospital setting.

Traditional family support programs typically involve emotional and practical support from family members without a structured framework [48, 52]. Our intervention formalizes this support with specific strategies and integrates spiritual elements, which can be particularly meaningful for patients from specific cultural or religious backgrounds.

This study had limitations. Sensory stimulation was not provided in the same form to all patients. Depending on family culture, families were allowed to hold hands, gaze, hug, kiss the forehead, rub the back, or rub the head. Also, only one family member was permitted to wait for the patient in the family waiting room, which meant that the patient could not choose which family members might visit them based on their comfort. This limitation could affect the stimulation provided by family members to the patient. In addition, the frequency of patients admitted to the ICCU was not assessed, whether the patient was admitted to the ICCU for the first time or had been repeatedly admitted. This could influence the patient's response to the pain experienced. Lastly, the presence of any accompanying diseases with ACS was not evaluated, which could impact the patient's coping mechanisms in dealing with pain.

Conclusion

Routine care combined with affective stimulation-based family-centered integrated spiritual support results in a better average pain and anxiety score.

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Ethical Permissions: The ethical considerations in this study focused on the safety of patients, families, and researchers. This research was conducted during the COVID-19 pandemic in DKI Jakarta. Procedures were implemented to prevent transmission during the research process, including conducting rapid antigen tests each time a family visited the patient and when the researcher interacted with the patient and family. This research was approved by the Ethics Committees of Padjadjaran University (577/UN6.KEP/EC/2021) and Tarakan Hospital (020/KEPK/RSUDT/2021). Informed consent was obtained from each participant willing to take part in the study.

Conflicts of Interests: The authors declared no conflicts of interests.

Authors' Contribution: Mulyana B (First Author), Introduction Writer/Methodologist/Main Researcher (20%); Trisyani Y (Second Author), Methodologist/Main Researcher (15%); Nuraeni A (Third Author), Assistant Researcher/Statistical Analyst (15%); Astrada A (Fourth Author), Assistant Researcher/Discussion Writer/Statistical Analyst (15%); Pamungkas RA (Fifth Author), Assistant Researcher/Discussion Writer (15%); Ekawaty D (Sixth Author), Assistant Researcher (10%); Wariani W (Seventh Author), Assistant Researcher (10%)

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