Volume 14, Issue 2, 2026: 267-275
p-ISSN 2354-7642 e-ISSN 2503-1856
Accredited by Directorate General of Higher Education, Research and Technology, Republic of Indonesia No. 35/E/KPT/2019

Jurnal Ners dan Kebidanan Indonesia
(Indonesian Journal of Ners and Midwifery)
DOI : http://dx.doi.org/10.21927/jnki.2026.14(2).267-275
Available online at: http:ejournal.almaata.ac.id/index.php/JNKI

Social support and uncertainty in illness on anxiety in Acute Coronary Syndrome (ACS) patients

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ABSTRACT

Background: *Acute Coronary Syndrome (ACS) remains a leading cause of morbidity and mortality, with many patients experiencing high levels of anxiety during recovery. This anxiety is often exacerbated by uncertainty in illness (one of aspects that play a key role in shaping anxiety responses among patients, particularly in life-threatening conditions such as ACS) and lifestyle changes, while limited social support further hinders optimal rehabilitation. Despite its clinical importance, research exploring the combined effects of social support and uncertainty in illness on anxiety in ACS patients is still scarce, highlighting the need for this study.*

Objectives: *This research aimed to analyse the correlation between social support and uncertainty in ilness with anxiety in ACS patient.*

Methods: *This study used a cross-sectional design on 73 respondents at National Heart Center Harapan Kita in May - July 2025. The study was conducted using four instruments consisting of characteristics, MSPSS, SF-MUIS, and HADS. The collected data were analyzed using the Pearson test because the data were normally distributed after the Kolmogorov-Smirnov (KS) test with the results 0.723 for social support, 0.788 for uncertainty in illness, and 0.737 for anxiety (p-value > 0.05).*

Results: *The results of the study showed a significant relationship between social support and anxiety in ACS patients (p-value: 0.012, $r_{pearson}$: -0.291). Other results showed no promising relationship between uncertainty in illness and anxiety in ACS patients (p-value: 0.481, $r_{pearson}$: 0.084).*

Conclusions: *The study found that social support significantly correlated with anxiety in ACS patients while uncertainty in illness showed no significant correlation. This research is highlighting the need for further research with larger patients, integration of Mishel's Uncertainty Theory in education, and the application of Family-Centered Care in Clinical Practice.*

KEYWORD*: acute coronary syndrome; anxiety; social support; uncertainty*

Article info : Received 15 September 2025; 1st revision 02 March 2026; 2nd revision 27 April 2026; accepted 19 May 2026; available online 02 June , 2026; published 30 June 2026

INTRODUCTION

Acute Coronary Syndrome (ACS) is a medical condition characterized by decreased or stopped blood flow to the heart muscle (1). ACS includes unstable angina, non-ST-elevation myocardial infarction, and ST-elevation myocardial infarction (2,3). This condition requires immediate medical attention to prevent further heart damage. This is supported by previous research that suggests that if ACS is not treated promptly, it can lead to significant morbidity and mortality.

ACS is the leading cause of death from cardiovascular disease worldwide and has poor morbidity and mortality rates (4,5). In the United States, more than 300,000 heart attacks occur each year, with the death rate remaining quite high (6). The prevalence of ACS in Indonesia is quite high, at least 2 million Indonesians have been diagnosed with this disease (7).

Patients who experience ACS often face a variety of physical and psychological challenges after medical treatment. Physically, recovery after a heart attack can be hampered by non-compliance with treatment, recurrent cardiac complications, and other disorders (8). In addition, psychological issues such as anxiety and depression often accompany their recovery. Post-ACS anxiety can affect patients' quality of life, reduce their ability to undergo optimal cardiac rehabilitation, and increase the risk of recurrent cardiac events (6).

The prevalence of anxiety in post-ACS patients is quite high and is a common problem in patients who have recently experienced a heart attack. The prevalence of anxiety in ACS patients is shown at various levels: mild, moderate, and high/severe, with percentages of 38%, 17%, and 10%, respectively (9). Other studies also show that the prevalence of anxiety in post-acute myocardial infarction (AMI) patients reaches around 22% to 28%, depending on the time after the event, both short-term and long-term (10).

This anxiety and depression are often caused by fear of death, uncertainty about recovery, and the lifestyle changes that must be faced after treatment. Furthermore, patients often face challenges in lifestyle management, including adherence to treatment and healthy lifestyle changes (8). Social support plays a crucial role in the recovery process of patients with ACS. It encompasses emotional support from friends, family members, and even healthcare providers, helping individuals during difficult times. Social support involves not only physical presence but also psychological support, such as providing a sense of security, listening to patients'

concerns, and encouraging them to undergo cardiac therapy (11,12). This study builds on previous research recommendations that suggest the need for further research on various factors influencing anxiety levels in patients with Coronary Heart Disease (CHD) in hospitals, such as social support (3).

This study also assessed the relationship between uncertainty in illness and anxiety in ACS patients. ACS patients experience uncertainty about the possibility of recurrent heart attacks or other medical complications. This is supported by other research that suggests patients experience loss and negative experiences, including uncertainty about the future (13). This uncertainty can be exacerbated by changes in lifestyle that must be adapted after a heart attack, such as restrictions on physical activity, changes in diet, and the need to manage stress (8). There has not been much research discussing the uncertainty of disease in ACS patients in Indonesia. This demonstrates that this research was conducted to address these gaps. Furthermore, assessing the uncertainty surrounding ACS patients' illnesses provides a novel value in this research.

Based on the explanation of this phenomenon, this study was conducted to assess the relationship between social support and uncertainty in illness on anxiety in ACS patients.

MATERIALS AND METHODS

This study used a cross-sectional design to identify the relationship between social support and uncertainty in illness on anxiety in ACS patients (where social support and uncertainty in ilness are independent variables and anxiety is the dependent variable). The study was conducted from May to July 2025 at the National Heart Center Harapan Kita using Uncertainty in Illness Theory as shown as in **Figure 1**.

The population in this study was patients diagnosed with ACS who were treated in the treatment room of the National Heart Center Harapan Kita. The sample size in this study was 73 patients, selected using consecutive sampling. The

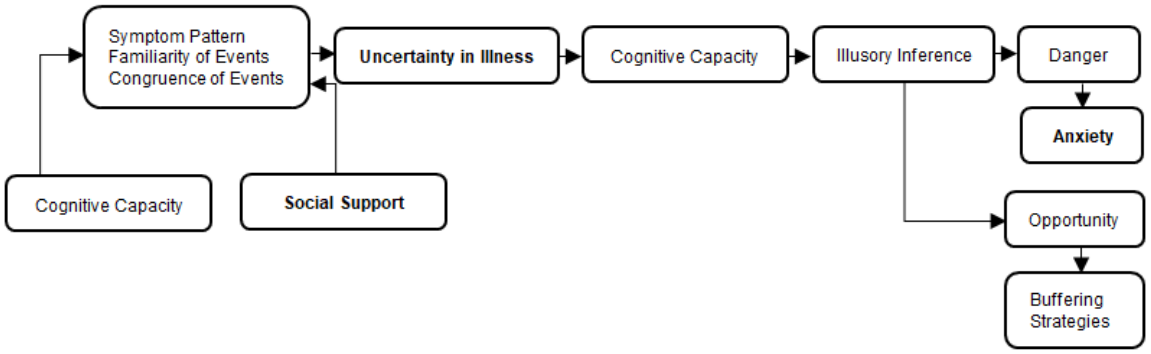

Figure 1. Theoretical Framework

sample criteria in this study were patients who were aged 18 years or older as assessed from the patient's medical records, had been diagnosed with ACS during a hospitalization period of more than 2 days as assessed from the patient's medical records, and patients who were in stable condition (no complaints of chest pain, shortness of breath, vital signs within normal limits, and no medication or support devices were installed as assessed from the physical assessment).

This study uses 4 instruments consisting of patient characteristics questionnaire, including age, gender, education, and medical diagnosis. Social support was assessed using Multidimensional Scale of Perceived Social Support (MSPSS) with a Cronbach's Alpha value of 0.890. It has a minimum and maximum score of 12 - 84, higher score means good social support. The next instrument was Short Form of the Mishel Uncertainty of Illness Scale (SF-MUIS) with a Cronbach's Alpha value of 0.70. It has a minimum and maximum score of 5-25. The higher the score a patient gets, the more uncertainty they feel. Hospital Anxiety and Depression Scale (HADS) was used to assess anxiety in the respondents with a Cronbach's Alpha value of 0.98. The higher the score a patient gets, the more anxious they feel.

Data analysis in this study used the Pearson test. Normality testing was performed using the Kolmogorov-Smirnov test, with values of 0.723 for social support, 0.788 for uncertainty in illness, and 0.737 for anxiety.

This research has passed the ethical test from the Institutional Review Board of the National Heart Center Harapan Kita with number DP.04.03/KEP097/EC054/2025 and the Hospital research permit with number DP.04.04/D.XIII/8837/2025.

RESULTS AND DISCUSSION

The results of this study showed that the majority of respondents were elderly with a total of 30 people (41.1%), male with a total of 59 people (80.8%), had a high school/equivalent education level with a total of 30 people (41.1%), and NSTEMI with a total of 27 people (37%) (**Table 1**).

Table 1. Respondent characteristics based on age, gender, education, and medical diagnosis (n=73)

Variable		Total	Percent (%)
Age	Young	7	9.6
	Middle-Aged	29	39.7
	Elderly	30	41.1
	Very Old	7	9.6
Gender	Male	59	80.8
	Female	14	19.2

Education	No Schooling	1	1.4
	Elementary School	13	17.8
	Junior High School	6	8.2
	Senior High School	30	41.1
	College/University	23	31.5
Medical Diagnosis	Unstable Angina Pectoris (UAP)	23	31.5
	Non-ST-Elevation Myocardial Infarction (NSTEMI)	27	37.0
	ST-Elevation Myocardial Infarction (STEMI)	23	31.5

The results of **Table 2** showed that the average social support score was 65.74 (9.472), uncertainty in illness score was 13.29 (3.039), and anxiety was 14.21 (6.468). **Table 3** shows that social support had a significant relationship with anxiety in ACS patients, with a p-value of 0.012 and a correlation value of -0.291, indicating a low correlation. The correlation results also showed a negative trend, where the higher the social support, the lower the anxiety experienced by ACS patients. This study also showed no significant relationship between uncertainty in illness and anxiety in ACS patients, with a p-value of 0.481 and a correlation value of 0.084. The results also indicated a positive relationship, indicating that the higher the uncertainty in illness, the higher the anxiety experienced by ACS patients.

Table 2. Score of social support, uncertainty in illness, and anxiety

Variable	Mean (SD)	CI 95% Mean		Min-Max
		Lower	Upper	
social support	65.74 (9.472)	63.53	67.95	37-84
uncertainty in illness	13.29 (3.039)	12.58	14.00	May-20
anxiety	14.21 (6.468)	12.70	15.71	Jan-30

Table 3. The relationship between social support, uncertainty in illness and anxiety in ACS Patients

Variable	*p-value*	$r_{pearson}$
Social Support	0.012	-0.291
Uncertainty in Illness	0.481	0.084

This study assesses social support through 3 dimensions such as social support from family, friends, and significant others. The result of this assessment shows a significant relationship between social support and anxiety in ACS patients. This study showed similar results to the research conducted by (14), which stated that limited social contact had a significant relationship with patient anxiety. Increased social support, whether from close relatives, family, or friends, led to decreased anxiety. Social support can mitigate the negative impact of stressful events.

Humans are social creatures who cannot live without the help of others. This support from others is called social support (12). Social support can be defined as emotional and material resources provided to individuals through interpersonal communication with those around them. This improves or enhances successful compatibility, increases satisfaction, enables an efficient life, and is associated with various psychological benefits (15). Other studies define social support as the reported receipt of supportive resources over a specific period of time. The availability of social support has been shown to improve psychological well-being and reduce morbidity and mortality in cardiac patients. Low social support has been linked to depression (16). Although social support correlated significantly, the strength of the relationship was weak. As seen in **Figure 1**, related to the model of perceived uncertainty in illness, in addition to social support, cognitive capacity plays a fundamental role in this model. Cognitive capacity is an individual's ability to process information and reflect on both innate abilities and situational constraints(17). However, this study did not assess respondents' cognitive capacity; it only looked at their most recent education, which does not represent a person's cognitive capacity.

The results of this study also show that uncertainty about the disease does not have a significant relationship with anxiety. These results can be explained using Mishel's Reconceptualized Uncertainty in Illness Theory. The impact of a patient's illness depends on their self-appraisal. Uncertainty can be perceived as a threat or an opportunity. In this study, it is possible that patients did not appraise the uncertainty as threatening, thus reducing its influence on anxiety (17). Another reason may be due to the fact that since patients entered the hospital, they have always received health education from health workers (**Figure 2**). This increases the patient's understanding of their condition or disease. Education during hospitalization and after discharge affects uncertainty in illness (18).

Uncertainty can be in the form of ambiguity, complexity, lack or inconsistency of information, or uncertainty. Mishel's theory states that uncertainty occurs when a person cannot adequately organize or categorize an event related to a disease due to a lack of adequate information. Education provided by nurses transforms this uncertainty into understanding. Moreover, in this study, the majority of patients had completed high school, fulfilling their schooling obligations. We assume this allows them to better understand the education provided by healthcare professionals. Mishel's theory states that providing structure (including education) directly reduces uncertainty (19,20). Thus, the findings support the notion that uncertainty does not directly influence

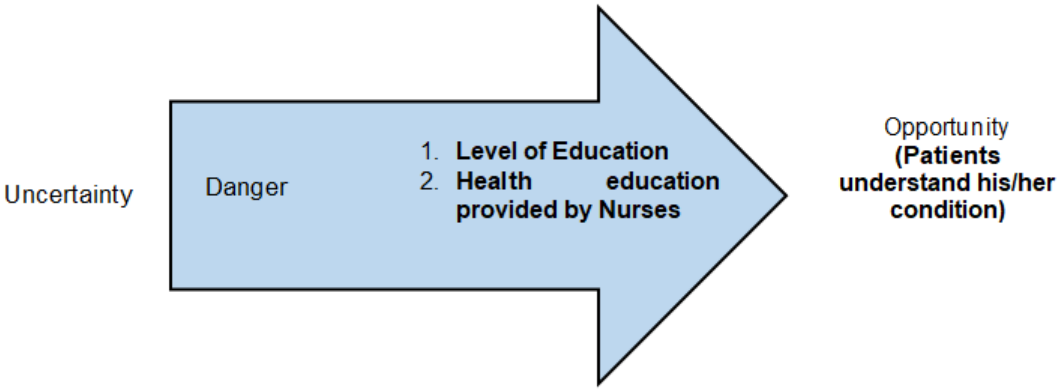

Figure 2. A reconceptualized uncertainty model in chronic disease according to the research

anxiety but operates through more complex cognitive and adaptive processes. This research has implications for nursing care. The results reinforce and demonstrate that nursing care should involve the family, not just the patient. Family-based nursing interventions should also be developed to reduce patient anxiety. This study is limited by its relatively small sample size, so further research with a larger sample size is needed. Further in-depth research, particularly on uncertainty in illness, is needed.

CONCLUSION AND RECOMMENDATION

This study demonstrated a significant relationship between social support and anxiety in ACS patients. Conversely, uncertainty in illness had no significant relationship with anxiety. Uncertainty can be perceived as a threat or an opportunity. In this study, it is possible that patients did not appraise the uncertainty as threatening, thus reducing its influence on anxiety. Further research, particularly on uncertainty in illness, is needed with a larger sample size. Combining cognitive capacity and coping mechanism are also important for the further research. Hospitals can develop nursing service standards based on psychosocial support to help reduce anxiety in ACS patients during hospitalization. Health education provided from the time of hospital admission should be maintained and enhanced, as it can help patients better understand their condition.

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