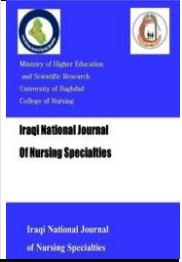




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Perception of Patients with Heart Attacks Toward the Warning Signs: A Qualitative Study

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ABSTRACT

Objective(s): To explore patients' perceptions regarding warning signs of heart attacks.

Methods: A descriptive phenomenological design explored 10 perceptions of patients with ischemic heart disease toward warning signs of heart attack by non-probability (purposive) sampling at cardiac care units at Baquba Teaching Hospital and AlKhalis General Hospital For the period from 21st of December, 2023 to 24th of February, 2024. A 7-item semi-structured interview guide was developed. Qualitative analysis (thematic analysis) was used in the data analysis. This process involved transcribing and translating quotes from Arabic to English for better comprehension. The data analysis procedure consisted of several steps, including first-cycle coding, second-cycle, and analytical notes

Results: Six themes and sub-themes emerged. These themes include suspicious recognition, imagination, fear, family roles, experience (experience with heart attack and psychological experience), religious aspects, and repercussions. The themes that emerged included all aspects of the condition that the patient went through during the heart attack from a physical, psychological, and spiritual perspective, which expressed the depths of his sense and cognition.

Conclusion: The level of participants' perception is closely linked to their personal experience with heart attack (Whether the sample had heart attack in the present or past). Knowledge alone cannot form perception unless it reaches the individual's psychological aspects, which are shaped through experience.

Recommendations: Conducting qualitative research is recommended at a national level and to the whole community to increase the generalizability of the results.

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تصور المرضى المصابين بالنوبات القلبية تجاه العلامات التحذيرية: دراسة نوعية

المستخلص

الاهداف: لاستكشاف تصورات المرضى بشأن العلامات التحذيرية للنوبات القلبية.

منهجية البحث: استخدم تصميم ظاهري وصفي لاستكشاف تصورات ١٠ مرضى مصابين بأمراض القلب الإقفارية تجاه العلامات التحذيرية للنوبة القلبية من خلال أخذ عينات غير احتمالية (هادفة) في وحدات العناية القلبية في مستشفى بعقوبة التعليمي ومستشفى الخالص العام للفترة من 21 كانون الاول 2023 الى 24 شباط 2024. تم تطوير دليل مقابلة شبه منظم مكون من 7 بنود. وتم استخدام التحليل النوعي (التحليل الموضوعي) في تحليل البيانات. تضمنت هذه العملية نسخ وترجمة الاقتباسات من العربية إلى الإنجليزية. يتكون إجراء تحليل البيانات من عدة خطوات، بما في ذلك ترميز الدورة الأولى والدورة الثانية والملاحظات التحليلية في تحليل البيانات.

النتائج: ظهرت ست موضوعات رئيسية وفرعية. وتشمل هذه الموضوعات: التعرف، التخيل، الخوف، أدوار الأسرة، التجربة (التجربة مع النوبة والتجربة النفسية)، الجوانب الدينية، والعواقب. وشملت المواضيع التي ظهرت كافة جوانب الحالة التي مر بها المريض أثناء النوبة القلبية من الناحية الجسدية والنفسية والروحية والتي عبرت عن أعماق إحساسه ومعرفته.

الاستنتاجات: ان مستوى إدراك المشاركين مرتبط بشكل وثيق بتجربتهم الشخصية مع النوبة القلبية (كون العينة مصابون بالنوبة القلبية في الحاضر او الماضي). المعرفة وحدها غير كافية لتكوين الإدراك ما لم تصل إلى الجوانب النفسية للفرد، والتي تتشكل من خلال التجربة.

التوصيات: إجراء بحث نوعي على المستوى الوطني وعلى مستوى المجتمع بأكمله لزيادة تعميم النتائج.

الكلمات المفتاحية: الإدراك؛ العلامات التحذيرية؛ النوبة القلبية، دراسة نوعية.

Introduction

Cardiovascular diseases (CVDs) are complicated illnesses that are the main causes of death worldwide ⁽¹⁾. The pathophysiology of CVDs, primarily resulting from atherosclerosis, entails the alteration of blood arteries, which can result in limitations in blood circulation that affect the heart and nervous system ^(2,3). Heart failure, cardiac abnormalities, coronary artery disease (CAD), cerebrovascular accident, hypertension, vascular disease, and ischemic heart disease (IHD) are encompassed by the broad category of CVDs ⁽⁴⁾.

Myocardial infarction (MI) is the primary form of IHD, characterized by an imbalance between the needs of the myocardium and the amount of blood flow available in the coronary arteries ⁽⁵⁾. MI is the medical term for Heart Attack (HA) ⁽⁶⁾. On a worldwide scale, in 2019, About 17.9 million for deaths caused by CVDs, making up around 32% of all deaths; of these deaths, around 85% were attributed to HA and strokes ⁽⁷⁾. Within 30 min of ischemia, cardiomyocyte structural changes and edema develop,

leading to progressive myocyte death after 3 hours of ischemia ⁽⁸⁾.

The majority of cases of HA are distinguished by warning signs such as prolonged chest discomfort in the central region lasting more than a few minutes, or recurring attacks; pain or discomfort in the arms or shoulder; pain or discomfort in the jaw, neck, or back; sensations of weakness, dizziness, or faintness; and difficulty breathing ⁽⁹⁾. Respiratory distress may occur with or without chest discomfort; additional symptoms may include the possibility of diaphoresis, nausea, or dizziness ⁽⁹⁾. A significant number of patients exhibit warning signs and symptoms for extended periods, ranging from hours to days, or even weeks in advance ⁽¹⁰⁾. Patients can reduce their risk of complications and death by rapidly recognizing warning signs that indicate HA and seeking timely treatment ⁽¹¹⁾. As per the guidelines issued by the American Heart Association (AHA) and Heart Foundation, it is advised that those experiencing symptoms of MI lasting for a duration of 5 to 10 minutes ⁽¹²⁾, or who experience a duration of less than

90 minutes should promptly seek medical assistance ⁽¹³⁾.

Annually, over 800,000 individuals are projected to get MI, with a majority of 27% dying before reaching the hospital ⁽¹⁴⁾. When the symptoms of HA start, a 30-minute delay in restoring blood flow leads to a 1.5% rise in mortality ⁽¹⁵⁾. A delay of 30 minutes increases the risk of mortality within one year by 7.5%, highlighting the significance of promptly recognizing symptoms and responding appropriately promptly ⁽¹⁶⁾. The extent of the infarction zone is determined by the duration of ischemia, which refers to the period when the heart muscle is deprived of blood supply and oxygen, the most crucial approach to minimize the infarction zone and enhance the outcome is to reduce the duration of ischemia by minimizing any delay and assuring prompt revascularization in patients with HA ⁽¹⁷⁾. Survival chances increase by 50% if reperfusion is achieved within one hour of the onset of symptoms, and by 23% if it is achieved within three hours of symptom onset ⁽¹⁶⁾.

The risk of CVDs is greatly influenced by the perceptions of adults, which in turn affects their decision-making toward their health ⁽¹⁸⁾. When people are confronted with potentially dangerous situations, their actions are impacted by a cognitive process known as risk perception ⁽¹⁹⁾. Individuals may have varying perceptions of risk, which can influence a range of actions, including those related to their health ⁽²⁰⁾. Patients who have a limited perception of the warning signs and symptoms of an HA or do not believe themselves to be susceptible to IHD, refrain from seeking medical intervention ⁽²¹⁾. Patients who have personally experienced HA and have received information from healthcare professionals regarding the symptoms or who are concerned about having HA demonstrate a greater degree of perception and improved awareness in recognizing and accurately reporting the real symptoms of coronary heart disease (CHD) ⁽²²⁾. Therefore, this study aimed to explore patients' perceptions regarding warning signs of heart attacks.

Methods

Study Design and Setting

A phenomenological study design (qualitative approach) has been used in this study to find out the patient's perception toward warning signs of heart attacks. The study sample was patients diagnosed with IHD and admitted to cardiac care units at Diyala Health Directorate for the period from the 21st of December, 2023 to 24th of February, 2024

Samples and Sampling

A non-probability (purposive) sampling method was utilized among patients with HA who participated voluntarily, were of different ages, male and female, and had multiple levels of education. They should be alert, oriented, attentive to questions, and able to communicate appropriately during the informed consent process. The patients with mental and neurological illness, patients with blindness, aphasia, and deafness were excluded. All participants were informed of the intent and purpose of the study and were given informed consent. The sample size was 10 participants, which is indicated by reaching the saturation point when the participants don't report anything different.

Measurement and Data Collection

A 7-item semi-structured interview guide was developed to investigate IHD patient's perception toward warning signs of heart attack, beginning with their experience with the attack, description of warning signs, ability to identify the warning signs, resources of information, consequences of delayed care seeking, how to deal with warning signs if recurrent with the same participant or someone else. Seven demographic questions were included, requiring information about age, sex, educational status, and residency. In addition to the history of risk factors. The interview was conducted by asking the patient who speaks Arabic an open-ended question and recording the answers through an audio recorder to refer to them during data analysis. The interview for the participant takes approximately 10-15 minutes to reach the depth of the answer and information.

Data analysis

The qualitative analysis (thematic analysis) process was conducted following the procedures specified by Giorgi ⁽²³⁾. The interview was recorded audio-wise with

precision after obtaining both oral and written consent from the participants. After completing the recording, data analysis proceeded by transcribing the audio interview into written text. Subsequently, the text was re-read and deeply analyzed to understand the meanings and ideas presented by the participants. The meanings of the extracted themes from the participants' ideas were then clarified, and these themes were linked to the

general phenomenon, which is the patient's perception of the warning signs of heart attack. This study presents the results of the thematic analysis conducted on the data. The data were analyzed using the Statistical Package of Social Sciences (SPSS), version 26. The study population was described using descriptive statistical parameters, frequencies and percentages.

Table 1. Socio-Demographic Characteristics of Study Participants (N10)

Socio-Demographic Characteristics		Frequency	Percent
Age	Mean (SD): 56 ±8.7		
Sex	Male	9	90%
	female	1	10%
Educational level	Primary	6	60%
	Secondary	1	10%
	Diploma	2	20%
	Bachelor	1	10%
Occupation	Employee	4	40%
	Retired	5	50%
	Housekeeper	1	10%
Residency	Urban	2	20%
	Rural	8	80%
Risk factors	None	1	10%
	Hypertension	1	10%
	Combination of two risk actors	3	30%
	A combination of three or more	5	50%
Smoking	Currently smoker	7	70%
	Non-smoker	3	30%
Smoking Duration(year)	Mean(SD): 35 ± 15.2		

SD= standard deviation, F= frequency, % = percent

Trustworthiness/rigor

Trustworthiness in qualitative research pertains to the validity of the findings and encompasses a range of methods to guarantee precision ⁽²⁴⁾. To demonstrate trustworthiness, Lincoln and Guba proposed a set of rigorous criteria: credibility, dependability, confirmability, and transferability ⁽²⁵⁾. Credibility, a crucial component of trustworthiness, indicates the extent to which the research findings correspond to the participants' real-life experiences and viewpoints ⁽²⁶⁾. Credibility in this study is established by employing techniques such as extended engagement by spending time with the participants before and after the interview and triangulation by carrying out interviews across cardiac wards were complemented by incorporating questionnaire responses and observations, thus corroborating findings.

Transferability, also known as external validity, pertains to the degree to which research findings can be generalized to diverse situations or populations beyond the specific study

environment ⁽²⁷⁾. In this study, the transferability is enhanced by achieving data saturation and utilizing purposive sampling approaches.

Dependability pertains to the accuracy and stability of research findings across time and among various researchers ⁽²⁸⁾. The study ensures dependability by providing a comprehensive explanation of the employed research methodology and by establishing an audit trail. Confirmability refers to the process of reducing researcher bias and ensuring that the conclusions drawn are based on the data obtained ⁽²⁹⁾. This study enhances confirmability by employing reflexivity and triangulation.

Ethical Considerations

The Council of the Nursing College/University of Baghdad- Ethics and Sobriety Committee, with a second session, awarded permission on November 22, 2023. The researcher provided an extensive summary of the study to the Iraqi Ministry of Planning (Central Statistical Organization), including the objectives and methods. Permission to gather the data from Diyala Health Directorate was approved. The researcher ensured that ethical standards were followed by obtaining informed consent from all participants without revealing their identities. The study's objectives were clearly explained to each participant with the right to withdraw at any moment.

Results

Six themes and sub-themes regarding patients' perceptions of the warning symptoms of HA have emerged. These themes were suspicious recognition, Imagination, fear, family roles, experience (Experience with attack and psychological experience), religious aspects, and repercussions

Suspicious recognition

The occurrence of heart attack is preceded by warning signs that serve as a red flag indicating a looming danger for the patient. The participant's responses varied in recognizing these signs, some were highly certain that these were signs of heart attack, while others were uncertain and had not reached a definitive certainty. The most commonly recognized warning signs are chest pain, fatigue, difficulty breathing, increased heartbeat, feeling of indigestion, and profuse sweating. Few participants recognized thirst, dry mouth, and severe headaches. An example of how patients described their warning signs recognition can be seen in the fourth patient's explanation:

"I was asleep and woke up due to a mild stomach ache that gradually escalated into a burning sensation in the stomach, then moved upwards to include the chest, resulting in severe pain in the middle of the chest and bothersome nausea, accompanied by an unusual and intense coldness".

The fifth participant stated: *"Warning signs of an impending attack included back pain between the shoulders and chest, profuse sweating, numbness, and tingling progressing to the left arm, weakness, and possibly coma".*

Imagination

When the participants were asked to describe the warning signs, they introduced the symptoms with different descriptions according to their imagination and the critical moments they experienced during the attack. Their descriptions varied, but they shared a common theme in expressing the severity and danger of the symptoms they encountered. For example, the second participant described it as

"I felt a sudden shot, like a large knife(cleaver) to my chest, with profuse sweating unlike anything I had seen before akin to a waterfall pouring over my body".

The fifth participant's description was:

"When the signs started off mild at first, I continued working until someone struck me with a sharp spear in the chest".

The third participant's expression was markedly different from the others, as he stated:

"I felt like something foreign had entered my body suddenly, and it overwhelmed me with heaviness".

Fear

The warning signs of heart attack occur suddenly or gradually, reaching a critical point when the patient reaches a peak. At this point, a state of fear sets in for various reasons, depending on the person and their mindset, as well as the fear of the unknown following these severe symptoms, which they have never experienced before. Some feel as though they are close to death and fear for themselves, their families, their children, and similar concerns. This was explained by the third participant who said:

"Thoughts consumed me-concerns for my young children's future, financial debts, and regrets about my relationship with God".

The fifth participant explained:

"I started reciting the testimony of faith because I thought I would die, and my only concern was to meet my Creator with a clear conscience that reflects good deeds".

Family roles

Participants indicated they had strong family support. Family support was obtained from the participants, especially those who lived in the same house as their families. Participants families provide them with hope and the necessity of seeking treatment to preserve their lives and assist in transporting them to hospitals as quickly as possible, as the fourth participant explained:

"I immediately contacted my brother to take me to the hospital because the pain was unbearable and very disturbing. My daughter and her supplications for me with prayers and verses from the Quran increased my hope and gave me strength and peace of mind".

The sixth participant reported

"My son wanted to take me to the hospital, but I refused, thinking the pain would subside. Then, I lost consciousness, and he transferred me to the emergency room".

Experience

Experience with Heart attack

The interview conducted with the participants regarding their experiences with the warning signs of an HA revealed that, as HA patients, they expressed their experiences in various ways, illustrating their condition during the attack. Despite having heard, read, or learned about others with similar symptoms, their personal experiences were different. A first participant explained this by saying:

"The incident occurred when I was in the military; the severity and seriousness of the symptoms made me perceive the symptoms of heart attack as they truly are."

The second participant stated:

"I often hear about people dying due to heart attack, and my doctor friend had previously mentioned heart attacks to me, and I've seen many TV shows depicting it, but I never realized its reality or severity until I experienced it myself. I have now become capable of identifying individuals suffering from heart attack".

The third participant reported,

"Despite being in the medical field, I failed to realize the severity and impact of the signs of heart attack until I suffered from myocardial infarction. Now, I can distinguish heart attack symptoms".

Experience with psychological stress

Some participants experienced difficult and tragic life events. These events included challenging working conditions or a lack of financial resources necessary for his family's life, as well as immediate anger and psychological stress from various causes (such as arguments with someone, family problems, etc.), which were found to provoke warning signs of heart attack. The eighth participant explained this by saying,

"Before the onset of symptoms, I had accumulated a lot of psychological stress due to being the head of the family and not having a stable government job, only free hard work barely meeting the daily requirements with great difficulty. While I was in the midst of this psychological stress, the symptoms suddenly appeared".

The third participant reported:

"These symptoms manifested immediately after experiencing severe psychological stress due to my children's failing in school with low marks. While standing, symptoms began to appear, with pain starting in my arms and spreading to my shoulders and chest pain that massaged it".

Religious aspect

One of the most important, primary, and strongest factors that helped patients to endure patiently during the onset of an HA and its warning signs, providing them with reassurance and tranquillity, was their faith in God and spiritual and religious matters. One of the benefits of divine spiritual, religious beliefs is that they connect participants to a source of infinite strength and support, which is associated with God, his messengers, and those who call upon him. This is what the fifth participant mentioned:

"Despite the pain, I found reassurance in my strong connection with God, a faithful servant who had never forsaken the pre-dawn prayers in the mosque for five years. Thoughts of my young son crossed my mind, but I quickly found peace, trusting in God's care for him".

Recalling religious beliefs alongside applying proper medical treatment leads to the physical and spiritual comfort of participants. This becomes evident through the statement of the second patient:

"Due to the intense pain in my left arm, my family and I were doing arm massages in addition to it with a piece of cloth from the flag of one of the infallible Imams for blessings and pain relief, as per my religious beliefs in Imam Hussein (peace be upon him), I began to feel some relief".

The fourth participant stated:

"When I experienced the symptoms, I was depressed about my children and wife. I didn't think of anything or anyone who could save me other than God and the family of the Prophet Muhammad (peace be upon him), believing that helping people wards off calamities and reduces difficulties".

Repercussions

Patients considered heart disease as a severe illness leading to severe complications and ultimately, death. Most significantly, they had a perception that heart illness is concerning, difficult to deal with, and challenging to live with. Moreover, when they asked about the most important action to save someone having heart attack in front of them, the answer was to transport the person very quickly and safely to the nearest hospital or healthcare facility with emergency and critical care services. This was explained by the first participant in his statement:

"I believe that if the patient does not immediately go to the hospital, it ends completely, meaning they die instantly. Their condition deteriorates if they delay, and the symptoms worsen significantly, and some heart attacks can be instantly fatal".

The second participant stated:

"If the patient does not seek medical attention promptly, they won't die suddenly, but the symptoms will gradually compel them to see a specialist because it can kill them(die) if not treated promptly and properly".

The ninth participant expressed:

"If symptoms occur in anyone. If they have not consulted a cardiac specialist and have not undergone general tests and examinations within the standard timeframe, their life may deteriorate. They may even die because the heart is the body's main engine".

Discussion

The first theme that emerged through the current research is suspicious recognition, which refers to the warning signs experienced by the patient and the suspicion that they might indicate heart attack or cardiovascular disease. This result aligns with a study that showed the themes of the description of sudden onset and gradual development of warning signs with misrecognition with certainty ⁽³⁰⁾. Another qualitative study clarified the same result that the participants were in doubt about recognizing the warning signs of an HA ⁽³¹⁾. That means the patient's perception are formed through their description of the warning signs they experienced, in conjunction with their awareness and prior knowledge of these signs, which gives them a questionable distinction. After consulting the healthcare institution and obtaining a final diagnosis from specialists, they reach a stage of full perception of the warning signs of heart attack and mechanisms of dealing with it.

Another theme that emerged from the current research results was imagination, where patients described the signs and symptoms they experienced using various metaphors indicating the severity and impact of the condition. This is similar to a qualitative study that found that the theme "imagine simultaneously scratched by thousands of long nails" ⁽³⁰⁾. Another study concluded that the participant made sense of the symptoms ⁽³²⁾. The interpretation of a theme that emerged is that the participants' imagination in describing the warning signs varied due to differences in age and cognitive development among them, as well as varying levels of education, culture, mental capabilities, and the environment they live in.

The current study found the patients expressed fear toward the signs of HA, which is attributed to various reasons depending on the patient's circumstances and the severity and intensity of their symptoms. A similar study showed that the patients fear death, disability, and fear of concern for their family life ⁽³³⁾. Another qualitative study found fear is a major emotional response to MI ⁽³⁴⁾. This proves that the main cause of fear among participants during an HA is the fear of the

unknown. They might fear the complications because they do not know what will happen or what comes after death. Additionally, fear for their family and children and what will happen to them.

Family role was one of the themes that emerged from the current study, which plays a key role in supporting the patient in multiple aspects. A previous study found that family support was important to the supported needed theme ⁽³⁵⁾. Family plays a clear role in supporting the patient psychologically, physically, and spiritually. They evoke their patients to feel a sense of belonging to the family, boost their morale, help them seek emergency medical care as quickly as possible, pray for them, and enhance their self-confidence.

The results of the current study highlighted the importance of personal experience and its impact on increasing participants' perception of the warning signs of an HA. This is similar to the result of a previous study, which showed that the perception of warning signs was related to personal experiences with heart attacks ⁽³⁵⁾. A similar study concluded that despite the strong family history of cardiac diseases, the result was not evident until after the personal experience with MI ⁽³⁶⁾. This can be interpreted as the fact that patients' personal experience with the warning signs of heart attack makes them fully perceive, with all their senses and organs, the severity and intensity of the signs and how to manage them during the episode cautiously.

Psychological distress experiences emerged when participants indicated that some symptoms appeared directly after prolonged stress or during intense anger. A similar finding found that stress is a subtheme of the CVD risk factors ⁽³⁷⁾. Another supported qualitative study indicated that psychological stress was the major concept that led to cardiac events ⁽³⁸⁾. This indicates that prolonged psychological stress and intense anger can trigger the signs and symptoms of heart attack in patients who have life-threatening risk factors.

The study highlighted the participant's religious aspect and its impact during HA regarding accepting the symptoms, alleviating

stress, and inspiring hope. A previous study showed participants returning to spirituality, such as their relationship with Allah before and after HA ⁽³⁹⁾. Another qualitative study emerged with the theme "It is in the hand of God" ⁽³¹⁾. This indicates that religious aspects and spiritual beliefs have the greatest positive impact on the patient by calming them and instilling hope through their connection with Allah, who represents an immense and unlimited external power that helps to reduce the panic that can exacerbate the severity of the symptoms.

The current study found that participants felt that there are life-threatening complications if they weren't seeking timely medical care. This in accordance with another study results found that the main factor that triggered seeking care was the deadly symptoms, especially chest pain ⁽³⁰⁾. Another study shows that the participant perceived the consequences of delayed care-seeking of HA, under the themes "live only as long as our heart is able to pump blood" ⁽³¹⁾. This is explained by delaying or avoiding seeking healthcare leads to life-threatening complications. Therefore, the immediate and correct decision to seek medical care within the first few hours of the onset of symptoms significantly increases the chances of saving the patient's life. The participant's perceptions are not affected by socio-demographics, unlike the influence of personal experience, which plays a very important role.

The nursing role

The nurse can enhance patients' perception in several ways, educate the patients by using charts, diagrams, and videos, using Mnemonics (like "PULSE" (pain, unexplained, lightheadedness, shortness of breath, extreme fatigue) to help them remember symptoms, allow patients to ask questions and express their concerns, role-playing and simulation (exercises in which patients practice recognizing symptoms and responding appropriately, such as calling emergency services), utilize technology as applications, and involve family members.

Implication and limitations

The research contributes in two directions. The first direction concerns the medical and healthcare staff by enabling them

to identify patients' deep internal psychological experiences during the attack and their perception of the symptoms, thereby positively impacting the fulfilment of patients' needs during the attack and in the following days. The second direction pertains to policymakers, providing them with a comprehensive view of the symptoms, supporting educational campaigns about the mentioned disease and conveying patients' experiences to the community to increase their awareness through repetition in the media and healthcare institutions.

Due to the severity of the patient's conditions and their psychological status, some of them refuse to communicate or take part in the research. Additionally, there may be resistance from both family members and healthcare staff who prioritize the patient's well-being despite having official approval from decision-makers. Patient withdrawal may manifest during the middle or towards the conclusion of the session, before its completion, as a result of abrupt symptoms, particularly chest pain and tachycardia.

Conclusion

The study results reveal that participants experience a state of panic and fear during an HA because they recognize life-threatening warning signs they have never encountered before. Some participants were confident it was a HA, while others were uncertain. Their perception of the signs varies based on their culture and experience with attack. This imminent danger, experienced firsthand, makes them think about who can save them from the severity of the symptoms. Consequently, patients turn to Allah, the ultimate and supreme power, to find solace and calmness. The severity of the symptoms compels participants to seek immediate help, as they may be at risk by knowing the necessity for prompt medical attention at a healthcare facility.

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Conflict of interest

The authors declares that they have no conflict of interest.

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Author contribution

The researcher conducted the scientific research steps, which included selecting the study title, collecting and

analyzing data, and then publishing the research findings in reputable international and local journals, in accordance with the guidance and instructions of the thesis supervisor, who closely monitored the work, provided corrections, and directed the researcher towards achieving accurate results.

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