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Avoidance in Cardiovascular Disease: A Qualitative Study

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Avoidance behavior may be significantly associated with health status in cardiovascular disease. This study was conducted to qualitatively examine avoidance behavior in cardiovascular disease. Data for this qualitative study were collected using a semi-structured in-depth interview developed by the researcher. The study population consisted of patients with cardiovascular disease from Baqiyatallah Hospital in 2020. The research sample included 12 individuals who were selected by purposive sampling method until saturation was reached. The data were analyzed using the content analysis approach and analyzed according to the method of Graneheim & Lundman (2004). Qualitative analysis of participants' lived experience revealed four main categories: Behavioral Avoidance, Cognitive Avoidance, Emotional Avoidance, and Supportive Avoidance. The results of this study included 2 behavioral avoidance themes (escape, behavior replacement), 7 cognitive avoidance themes (positive referencing, spiritual support,

jokes, denial, thought replacement, ignoring, and positive referencing), 2 emotional avoidance themes (catharsis and physical relaxation), and 2 supportive avoidance themes (reference to others and procrastination). Avoidance is a short-term strategy for coping with feelings and thoughts and can be viewed as a self-defense strategy to avoid catastrophic consequences.

Keywords: avoidance, cardiovascular disease, qualitative study.

Cardiovascular diseases (CVD) are defined as one of the psychosomatic diseases. Low socio-economic status, lack of social support, stress at work and in family life, hostility, depression, anxiety and other mental disorders contribute to the risk of developing CVD and its poorer prognosis (Piepoli etal, 2016).

According to Roth et al. (2020) the total number of reported prevalent cases of CVD almost doubled from 271 in 1990 to 523 in 2019, and CVD deaths increased from 12.1 million in 1990 to 18.6 million in 2019. Recent research suggests that psychosocial factors are associated with an approximately 1.5-fold higher risk of cardiovascular events (Rozanski etal, 2019). Depressive and anxiety disorders have been significantly associated with an increased incidence of CVD CVD (Seldenrijk etal, 2015). The most recent meta-analysis found that the prevalence rate of anxiety disorders in CVD is about 16% and is associated with a 52% increased incidence of CVD (Batelaan etal, 2016).

Several factors contribute to this disease and increase the risk of developing it. These risk factors include obesity, physical inactivity and sedentary lifestyle, gender, age, family history and a psychological factor such as stress (Rychter etal, 2020; Milena etal, 2019; Akhuemonkhan, & Lazo, 2017).

Stress-related disorders have also been associated with the early onset of cardiovascular disease and a moderately increased

risk of death (Dar, 2019; Celano etal, 2015), which is comparable to the risk of smoking, an unbalanced diet, and physical inactivity (Rozanski, 2014).

There is evidence that stress management strategies are associated with lower stress in CVD patients (Chinnaiyan, 2019). Lazarus et al (1984) defined coping strategies as a set of behaviors and cognitive responses aimed at minimizing the pressure of stressful life situations.

Avoidance coping as one of the coping strategies refers to behavioral or cognitive changes to avoid the stressor through distraction ((Endler, & Parker, 2000). The results of one study revealed that CVD patients have higher scores in avoidance behavior ((Rong etal, 2018). Other researchers point to the need for coping strategies in cardiovascular disease to promote health (Roohafza etal, 2022). Avoidant coping has been shown to influence emotional distress and the perception of malignant symptoms as well as feelings of low control over the disease (Nahlén Bose etal, 2018).

One study found that the avoidance coping strategy was only associated with an increased risk of ischemic heart disease (IHD) in individuals with hypertension (Svensson etal, 2016). The results of another study showed that individuals with higher diastolic blood pressure were more likely to use in avoidance coping (Shukla, Lau, & Pandey, 2023). Avoidant coping has also been associated with physiological and negative psychological outcomes (Quah etal, 2020; MacCann etal, 2022).

The results of a qualitative study demonstrated that the adaptive coping approaches can also be summarized in four themes: decision-making, avoidance, consistent responses, and episodic (Qiu, Tang, Wang, & Ye, 2021). Greeting avoidance is

associated with lower well-being and higher cortisol during interpersonal stress (Birditt etal,2015). Avoidant coping has also been associated with higher systolic blood pressure reactivity and slower cardiovascular recovery (Mrug etal, 2023; Cavanagh, Obasi, 2021).

In summary, avoidance behavior can explain some of the psychological mechanisms involved in coping with illness and treatment. Phenomenological research understands the inner side of human behavior through experiential techniques and analysis, in-depth interviews, and categorization. Since there is little qualitative and quantitative research on avoidance behavior in CVD, the main objective of the study was to investigate avoidance behavior in CVD disease through interviews.

Method

The present study was designed qualitatively to explore knowledge and understanding of the experience of cardiovascular disease prevention. The qualitative method emphasizes deep understanding, complexity and detail of the phenomena studied, with the researcher actively involved in the research process. The research instrument was a semi-structured in-depth interview. The semi-structured in-depth interview began with the interviewee's central question, "How would you describe your emotions?" Participants were asked to describe their emotions and how they deal with them. Further questions related to how they reacted to stressful situations, how they reacted to unpleasant thoughts in their head and how they reacted to discomfort, not achieving goals, dealing with pain and suffering and unpleasant situations in general. The interviews

were conducted in a private location. Consent was also obtained from all study participants.

The study population included people with cardiovascular disease: defined as diseases of the heart and blood vessels, including heart disease (angina pectoris), heart attack, heart failure and stroke, which were referred to Khatam Al-Anbia Hospital in 2020. 12 people were randomly selected until saturation was reached. Inclusion criteria included a diagnosis of cardiovascular disease. Subjects also had to have experienced five symptoms in the last six months. The main exclusion criteria also included psychiatric disorders or severe physical illness. Exclusion criteria also included acute illness and inability to answer interview questions.

The content analysis approach was used to analyze the qualitative data of the study. Content analysis is one of the many research methods and techniques for analyzing textual data that not only analyzes the explicit content of the text, but also the hidden content. Therefore, the data was analyzed using the qualitative content analysis method (Graneheim, & Lundman, 2004). First, the text of the interviews was collected as the main research data. In the second step, the content of the interview was summarized into semantic units. In the third step, the semantic units were designed and codes were selected. According to the participants' experiences, explicit and implicit concepts were identified in the form of sentences or paragraphs of their words and meaning codes, after which the coding and summarization were carried out. In the fourth step, based on the constant comparison of similarities, differences and proportions, the similar codes were classified into a class, subclasses and classes were categorized and axial codes were formed. In the

fifth step, the interpretation level, the classes were summarized and the central concept of each class was identified, extracting the main and abstract concepts. The concepts were checked against the description of the internal themes using the whole data. The criteria of Guba & Lincoln (1989) were used for the accuracy of the data.

Instruments

When selecting participants for this study, the researcher first conducted an initial briefing. If participants wished to take part in the study, they were given information about the purpose of the study, how the data would be collected, and the nature of the collaboration. The participants in this study took part in the study voluntarily. If the participant gave verbal consent to participate in the study, the location and timing of the interview were determined in accordance with the participant's opinion. At the beginning of each interview, the participants were given an informed consent form which included an explanation of the purpose of the study, a detailed introduction of the researcher, an explanation of the research method, as well as the advantages and disadvantages of the study. The patients signed the consent form and agreed to participate in this study. The researcher endeavored to ensure the psychological safety of the participants. Accordingly, each interview was conducted individually and with respect for the participants

privacy. Participants were assured that their information would be recorded confidentially and that participants' names would not be used in the publication of the results. Participants were assured that they could leave the study if they wished and that they could withdraw their consent to participate in the study at any time.

The duration of the interviews varied between 35 and 90 minutes, depending on the response and willingness of the participants. Originally, 11 patients were interviewed. Due to data saturation, no new data was added. However, to confirm this, a further survey was conducted, reaching 12 patients. Demographic characteristics such as type of illness, age, occupation, gender, marital status, education and duration of illness were also recorded. In parallel to the data collection, an analysis was conducted using the content analysis method to determine the types of "avoidance". Note that content analysis focuses on the life experiences, interpretations and meanings that people encounter.

The data was analyzed manually using conventional qualitative content analysis. Guba & Lincoln's criteria were used for the accuracy of the data. In this regard, the researcher obtained the criterion of credibility by interacting with the participants and confirming the information with them. Stepwise repetition of data collection and analysis and review by supervisors and other researchers were used to increase the reliability of the data. Faculty members' opinions and their complementary opinions were used for the criterion of agreement. Transferability was ensured by providing a detailed description of the report so that the research could be evaluated and applied in other settings. To ensure transferability, a table of participant demographics, including type of illness, age, occupation, gender, marital status, education, and duration of disease is provided (Table).

Table 1

Demographic Information of Participants in the Research

Type of disease	Age	Job	Gender	marital status	Education	Duration of diseae (year)
coronary artery diseases	47	Housekeeper	Female	Married	Bachelor	3
hypertensive heart disease	45	Freelance	Man	Married	Diploma	4
hypertensive heart disease	52	Building	Man	Married	Diploma	4
coronary artery diseases	48	Housewife	Female	Married	Diploma	5
Stroke	49	Employee	Female	Married	Bachelor	6
venous thrombosis	45	Secretary	Female	Single	Master's degree	4
Stroke	41	Housewife	Female	Married	Diploma	7
rheumatic heart disease	41	Nurse	Female	Single	Bachelor	5
heart failure	45	Employed	Female	Married	Bachelor	6
coronary artery diseases	33	Teacher	Man	Married	Diploma	4
Stroke	39	Police	Man	Married	Master's degree	5
Stroke	49	Real Estate	Man	Married	Diploma	7

As can be seen in the table, most of the participants are married (10 people). In terms of education, 6 people have a diploma,4 have a bachelor's degree, and 2 have a master's degree. In addition,7 people were women and 5 men. The age range was between 33 and 52 years.

Results

Table 2 reports the coding of avoidance behavior. Behavioral avoidance included behavioral replacement and escape. Replacement behaviors included: painting, exercising, listening to music, eating, and playing computer games. Escape also included: change of discussion, getting sick and recurrence of symptoms, excessive sleep.

Table 2

Coding the Behavioral Avoidance

Selective codes	Axial codes	Open codes
Behavioral avoidance	Behavioral replacement	Painting, exercising, listening to music, eating, computer games
	Escape	Change the discussion, becoming ill and reappearance of symptoms, excessive sleep

Avoidance is a natural reaction that is crucial for the survival of the individual. It is the tendency to flee from internal experiences such as feelings, thoughts, and memories. This type of avoidance involves techniques to feel better when one cannot physically escape. Behavioral avoidance is an activity aimed at avoiding an internal or external stimulus that is difficult to cope with and leads to loneliness. Behavioral avoidance includes withdrawal, postponing decisions, leaving tasks and responsibilities before they are completed, and missing opportunities. For behavior avoidance, participants applied two types of behavioral substitution and behavioral escape. The terms "behavioral escape" and "behavioral avoidance" refer to a

situation in which a person does not enter or leave fear and anxiety. In behavioral avoidance, the person engages in another behavior and distracts themselves from the problem, which is more fun.

Participant's number 3 and 7 stated that they exercise in stressful situations.

"I exercise every day, go for a 40-minute walk and go climbing every week on Fridays. Although I only started two months ago, it's great, but my wife is not a good person and I push myself not to be dependent on anyone, but to achieve my goals."

Participants number 1, 7, 9, and 12 reported that they listen to music for hours (sometimes more than 10 hours) and overeat in emergency situations.

"When I listen to music, I feel like my heartbeat is more regular."

"When I feel unhappy, only music can heal me and relieve stress."

"When I am at the end of my tether, I eat something quickly, I cannot get enough, when I get up from the table I am hungry. I hate myself so much; I eat greasy food and fast food and snacks until I explode."

In addition, some participants reported long periods of sleep during a crisis situation (8, 9 and12).

"I don't sleep well at night either; I'm always stressed and sleepless. Since I got married, I don't sleep well at all at night, I'm stressed and restless... Even in the morning when I want to go to work, I find it so hard to wake up, I've been in the kitchen many times. I've cried...or if I go to work until the evening, I'm nervous and confused...no matter what I do, I don't get enough

sleep...I lose work and life...I miss all opportunities...my work is terrible, I'm running out of time."

"Repressing past memories makes me sleep too much".

Participants 3, 4, 6, 11, and 12 reported symptoms of illness in stressful situations, such as increased blood pressure, repeated coughing or gastrointestinal symptoms (diarrhea and constipation).

“When I'm under pressure, I get dizzy and have headaches".

“My life has become monotonous. When I think about my problems, my headaches get worse and my blood pressure rises. My stress increases; I keep thinking that I have a certain illness. So every day an illness pops up somewhere in my body; one day it's my legs and hands, one day it's a headache, one day it's stomach pain"

“When I think about the past, I get a stomach ache, my hands and legs get numb and I get totally tired.”

“When I think about family problems, my headache gets worse.”

Table 3
Coding the Cognitive Avoidance"

Selective codes	Axial codes	Open codes
Cognitive avoidance	Positive reference	Concentration on positive aspects, believe in luck, positive forecast
	Distractions and ignoring	Being indifferent, the insignificance of the issue, computer game, reading book
	Replacement of thoughts	Optimism, pessimism
	Denial	Not accepting the issue
	Joking	Laughing at thoughts, playing with thoughts, playfulness
	Spiritual support	Reading Qur'an, praying, thanksgiving, referring to religious scholars, meditation
	Positive reference	Concentration on positive aspects, believe in luck, positive forecast

Cognitive avoidance includes mental strategies such as consciously trying to suppress thoughts, ruminating, and trying to separate stressful impulses from one.

Some of the optimistic thoughts were the following: "A good future awaits us" and "Although I am not doing well at the moment, I have a feeling that the situation will be much better in the future.

In addition, the thoughts of being respected, having high ability, being successful, being lucky and having hope were mentioned by participants number 1, 3, 5, 7, and 8 respectively.

"When I am stressed, I try to think of the positive aspects of my life to relieve the stress."

"When negative thoughts come into my mind, I remind myself that there are many blessings in my life that I may not have noticed before. So I list them one by one and am grateful; for example, that I can now breathe or that I have a God who hears my voice.

“In my job, I try to look for successes and focus on them. If I think I am good at my job, I try hard and perform well, and I choose my friends among those who have positive ideas.”

Although the economic situation is ruined and life has become very difficult, we have made plans for this year and I have come to the conclusion that it is possible to live with little money, and this has greatly strengthened my hope for the future.

Some participants also read the Quran and prayed in times of stress and discomfort (4, 9, 7 and 8). In other cases, two participants stated that they joked about their stressful thoughts (1 and 8) and some participants categorized the problem as less important and considered its impact on the future unimportant (1 and 8).

"The only consolation for the problem in my life is to read the Quran and pray".

" I have problems in my life, but I have never stopped praying. God is always kind, and I have seen in myself that I am often in pain with him and then calm down again. He always answers my questions, perhaps sometimes too late. But he has answered me and has not left me alone. I only have God in my life, which never leaves me alone.

“The only way to get the negative thoughts out of my head is to joke with them."

"I tell myself every morning that I am happy and healthy today. I greet the morning with a smile and always try to be

happy and smile. I look for the happy and fun aspects of life and refuse to blame others for my inability to be happy."

"I put my trust in God. I ask him for help and entrust all my affairs to God, the Great One, because whatever God wants will happen".

"If something happens to me, I feel better the next day and think about the things that make me sad so I can focus my desire on something else. I get on with my life and feel like I am doing well."

Table 4

Coding the Emotional Avoidance

Selective codes	Axial codes	Open codes
Emotional avoidance	Catharsis	Crying, yelling, writing your emotions and talking to yourself, dancing
	Physical release	Hitting something with your fist, beating somebody, self-harm

Emotional avoidance can be viewed as a form of experiential avoidance, in which emotional experiences that are perceived as repulsive and/or threatening are avoided or attempts are made to control them.

Emotional avoidance includes crying (1, 3, 5, 8 and 12), writing down emotions(2 and 4), hitting with fists and breaking dishes(10 and 12), Self-harm (10 and 12): and hitting others (10 and 12).

"When I am nervous and angry to talk to my partner, I write them down, and after a few hours when I have calmed down, I

read them. I see, oh oh, how ill-tempered I was, and my words were illogical, if I had said the same words to my husband we would have had a real fight."

"I write down my negative thoughts, my worries and my bitter experiences, especially the experiences that bother me, I even write down my bitter memories, I am doing very well, I tear the front and back into three sheets and throw them away"

"I was so unhappy about this event that I cried for days"

"In that situation, I could not ignore my child's mischief and hit him, but then I repented and even broke all his toys."

"Only breaking dishes can calm me down and relieve my stress and anger."

“Sometimes when I am under a lot of mental pressure, I start crying. When I cry, I feel like a weight is lifted off my shoulders and it gives me a sense of calm. I used to cry mostly in the middle of the night because it's quiet then and I am alone with myself, which is a good feeling."

“I shout and hit my 4-year-old son's husband and even shout at my wife. I rant and get so nervous that I break household items. My circumstances are very chaotic. I hate myself and my life. I have no other choice.”

Table 5

Coding the Supportive Avoidance

Selective codes	Axial codes	Open codes
Supportive avoidance	Referring to other person	Meeting friends, talking on the telephone
	Procrastination	Delaying your activities or other people's activities

In supportive avoidance, people look for a supporter in the environment to provide relative relief. Some of the participants relied on other people, such as friends and family, in critical situations (2, 4, 7, 8 and 9). Some of the other participants postponed their problem to another time and diverted their thoughts away from it and focused on other issues. They also distracted themselves from the problem by, for example, postponing dieting, postponing studying, and planning daily activities (4, 6, and 9).

"I am very interested in communicating with other people and I have a lot of contact with my family and neighbors, if they were not with me, I would perish or die."

"Only talking to my family members, friends, and colleagues can take away my sadness and worries."

"When I feel bad, I spend time with people who make me feel good."

"I am lost in life; I have so many half-finished jobs. I was relatively depressed, I do not do sports, and my grades in my Master's program were good, I read lectures with interest and were happy, now I have not worked for a while."

"I was overweight and eating was stressful, so I put it off to reduce my stress."

Discussion

In the present study, we sought to identify patterns of avoidance coping in response to acute psychosocial stress. Avoidance is a process in which one is unwilling to experience unintended private events as well as emotions and trying to control or escape from them. Avoidance is a short-term strategy for coping with emotions, feelings, and thoughts and can be viewed as a self-defence strategy for avoiding catastrophic consequences and coping with illness.

In the present study, cognitive, behavioral, emotional, and supportive avoidance strategies were observed in the participants. The results of previous studies suggest that patients use a variety of coping strategies in the coping with illness, such as problem-focused coping (Lazarus & Folkman, 1984), emotion-focused coping, spiritual coping (Reynolds etal, 2016), confrontation avoidance (Eisenberg et al., 2012), or denial coping (Rossi Ferrario, Panzeri 2020).

The paradox of avoidance is that trying to hide or control thoughts, unpleasant feelings and physical sensations can increase the distress of these experiences and the feeling of helplessness or detachment (Gross, 1998a). Most people sometimes tend to avoid situations rather than face them, even when they know that the avoided situation will be helpful in the long run. Individually, there are a variety of avoidance patterns, including behaviors, emotions, and cognitions. Behavioral avoidance may relate to everyday behaviors, such as a regular exercise program or a healthy diet, or it may relate to frightening

stimuli. In the results of the present study, participants with avoidance behavior showed two types of replacement behavior and escape from the situation. The avoidance behavior sometimes subsides after they realize that the behavior is pointless, and sometimes they continue to avoid it (John & Gross, 2004).

Learning theory identifies a number of impaired functions of avoidance. First, the avoided behavior is often reinforced because it provides immediate relief by escaping the situation. Second, avoidance behavior reduces a person's opportunities to receive positive reinforcement and creates an environment of deprivation. In addition, avoidance behavior can increase egocentric attention and rumination because avoidance behavior limits interests and reduces contact with external stimuli (Jacobson et al, 2001).

Avoidance behavior clouds the individual's consciousness. The results of qualitative studies have shown that awareness enables them to live with the symptoms. In addition, patients who have psychological insight seek better coping mechanisms and may be the most appropriate group for treatment (Sowińska A, & Czachowski, 2018).

Although behavioral avoidance is usually the most common form of coping, people can avoid distressing feelings such as anger, fear or disturbing thought patterns. In cognitive avoidance, cognitive processes take place during avoidance. The results of the present study revealed that during cognitive avoidance, people express their worry in the form of optimism, distraction, thought replacement, denial, joking, and spiritual support. The results of a qualitative study indicated that the strategies used by patients to cope with their health condition

included acceptance, positive reinterpretation, and growth (Dew, & Wilkes, 2018).

Although cognitive avoidance is generally considered maladaptive, some research suggests that cognitive avoidance may allow individuals to develop effective coping skills and may have long-term effects on a person's physiological and cognitive indicators as well as their social relationships (Folkman, & Moskowitz, 2004).

Optimism has long been regarded as a positive quality for life. Previous studies have shown that optimism is associated with a lower risk of death from cardiovascular disease. Accordingly, optimism is associated with cardiovascular benefits and pessimism with cardiovascular risks (Krittanawong et al, 2022). The results of another study reported an association between optimism and more effective goal-setting, problem-solving, and coping skills (Esteve et al, 2018; Reed, 2016; Joshanloo, 2023).

Thought substitution can be a particularly helpful strategy for coping with negative content. Thought substitution is a form of positive thinking that has a positive effect and can be used to cope effectively with worries (Eagleson et al, 2016). In positive psychology, thought substitution is a cognitive process that generates pleasant images to cope with problems and create a clear perspective on life. It acknowledges both the negative and positive aspects of situations and then leads the person to an accurate and positive analysis (Bekhet, & Zauszniewski, 2013).

Some research suggests that joking can be an avoidance strategy. A previous study has shown that people are more likely to make jokes about illness and has investigated how this behavior is related to illness avoidance (Carcioppolo et al,

2019). Positive distraction in daily activities is a good predictor of coping (Leslie-Miller, Cole, & Waugh, 2023). Distraction (e.g., focusing on an unfamiliar object or imagining a quiet place) can be used to cope with pain and discomfort associated with medical procedures, i.e., to minimize the emotional distress associated with a stressor. Distraction is also categorized as passive coping, which is associated with helplessness, avoidance, etc. (Lazarus, & Folkman, 1984). Janson, & Rohleder (2017) also pointed out that distraction coping is associated with higher salivary cortisol levels. In addition, higher levels of distraction predicted a steeper drop in cortisol after peak salivary cortisol up to 60 minutes after exercise. In addition, distraction has been shown to reduce the experience of anger, stress responses and post-stress cortisol (Janson, & Rohleder, 2017).

The most common types of denial include: Denial of facts, denial of the consequences of a medical injury, denial of the emotional impact, and denial of the importance of medical information and medical facts related to the disease (Rossi Ferrario, Panzeri 2020).

In this study, patients considered adherence to their religious beliefs as a source of better coping with their illnesses. Religion was introduced as an indicator of disease avoidance (Rong etal,2018). Previous reports have shown that religion is sometimes perceived as a form of avoidance, denial, or escapism (Fuentes-Ferrada et al, 2023; Yilmaz et al, 2022).

In Islamic culture, it is reported that the religious elements lead patients to rely on prayer as a source of emotional and spiritual healing, especially during the illness (Gonzalez et al, 2016).

In emotional avoidance, people use catharsis and physical relaxation to escape. Coping strategies may play a role in physical disability, duration of illness, and overall distress (Cerea et al, 2021). Emotional avoidance plays an important role in various aspects of life, including coping with stressful events. This avoidance impairs enjoyment of an activity, makes it less likely that positive events will be repeated, and weakens positive emotions (John, & Gross, 2004). Emotion avoidance is an emotion regulation strategy and involves efforts to control, escape, or prevent disturbed thoughts, emotions, or emotional experiences (Werner, & Gross, 2010). Meanwhile, poor emotion regulation strategies are a risk factor for the development of heart disease (Bahremand et al, 2015).

In this study, participants cried, screamed, wrote down their emotions, talked to themselves and danced to calm their feelings. Crying is a form of emotional catharsis which is associated with the often assumed positive health effects of reducing emotional stress. Crying has also been described as beneficial to health when cathartic emotions are involved (Byun, Hwang, & Kim, 2020). Several studies have shown that writing about past experiences or emotional problems has an impact on mental and physical health (Procaccia, Segre, Tamanza, & Manzoni, 2021). Dancing can also promote the healing process because one gains control through the mastery of movement and the mental mastery of dance and can be distracted from stress and pain by changing emotions (Karkou et al, 2021). Dance is a holistic experience of mind and body as it leads to higher embodied self-awareness and creative self-expression (Braun, & Kotera, 2021). Overall, emotional catharsis reduces heart rate after aggression in cardiac patients (Zhan, Xu, Ren, & Luo,

2020). In supportive avoidance, participants also look for supportive cues to escape the situation. These include meeting with friends and family members. The second strategy is procrastination, in which people put things off and prioritize activities that are less painful and more fun, moving away from their true feelings.

The current study had its own limitations. First, we asked patients to recall the coping strategies they used. We investigated their influence on physical disability; therefore, other factors and coping strategies might play a role in CVD that were not considered. As the present study is a qualitative study, some limitations such as observer bias and lack of generalizability should be mentioned. Another limitation was the lack of sufficient background knowledge in the field, especially in qualitative studies. It is recommended that other psychological and social factors be investigated qualitatively and quantitatively in future studies. These findings offer new insights into avoidance coping. Current evidence suggests that cardiovascular disease would benefit from avoidance-based interventions to improve psychological flexibility of thoughts and feelings. Psychological flexibility leads to accepting one's experiences rather than running away from or controlling disturbing thoughts, emotions or bodily sensations. On the other hand, avoidance strategies should be minimized in CVD, as these strategies have been associated with negative psychological outcomes, diastolic blood pressure, emotional distress, feelings of low control over the disease, and mortality. Finally, positive alternative strategies (such as psychological flexibility) should be encouraged in the diagnosis of CVD. These findings are important, especially since avoidance

strategies are potentially modifiable through psychological interventions, particularly third-wave behavioral science, and could be mediated in CVD.

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Footnotes

Authors' contributions

HC: Investigation, Writing—original draft, Writing—review and

Editing, conducting interviews, Data analysis and coding.

ARK: Designing interview questions, provided critical revision of the article,

AR: provided critical revision of the article, Confirmation of interview questions,

data analysis and coding.

HG: Confirmation of interview questions

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