RESEARCH

Exploring disease perception and experiences of postoperative patients with Stanford type A aortic dissection: a qualitative study

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Abstract

Background Stanford type A aortic dissection (TAAD) is a critical cardiovascular emergency characterized by acute onset, rapid progression, severe clinical manifestations, high mortality rates, and frequent complications. Patient's postoperative experiences are closely linked to their physical and mental health. Therefore, understanding their illness experience is essential to facilitate recovery.

Objective This study aimed to explore disease perception and postoperative experience of TAAD patients through semi-structured interviews, providing a formulation for developing standardized postoperative management protocols.

Methods A phenomenological qualitative study was conducted in the cardiac and vascular surgery department of a tertiary hospital in Ningxia Hui Autonomous Region between January and May 2023. Purposive sampling was used to recruit postoperative TAAD patients. Semi-structured interviews were conducted to explore disease perception and experiences. Interview data were analyzed using Colaizzi's seven-step analysis.

Results A total of 16 patients were interviewed. Based on the interview data, 296 codes were extracted and pooled into 17 subthemes, which were finally integrated into 4 themes related to disease perception and experiences: significant symptom burden, complex and varied psychological experiences, different coping styles, and diverse needs for health services.

Conclusion Postoperative TAAD patients face numerous health challenges. Healthcare providers should closely monitor physical symptoms, systematically address psychological fluctuations, develop targeted interventions based on identified coping patterns, and design patient-centered care models to address unmet needs. These strategies may alleviate adverse experiences and enhance rehabilitation outcomes.

Keywords Aortic dissection, Qualitative study, Phenomenology, Illness experience, Symptom burden

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Introduction

Aortic dissection (AD) represents a critical cardiovascular emergency characterized by sudden onset, rapid progression, and high mortality rates [1]. This condition primarily results from acute injury to the aortic intima due to various etiological factors, where highvelocity blood flow penetrates the intimal tear into the aortic media, propagating longitudinally along the aorta to create pathological separation between true and false lumens [2, 3]. Recent epidemiological data indicate an annual AD incidence rate of 5-10 per 100,000 in China, with a mean patient age of 51.8 years [4]. Anatomically, depending on the source of the intimal tear and the extent of the dissection, AD can be divided into two main types: Stanford type A (involving the ascending aorta) and type B (not involving the ascending aorta) [5]. Stanford Type A aortic dissection(TAAD) accounts for approximately 58-62% of all AD cases [6-8]. TAAD involves extensive aortic tears and lesions, frequently causing multi-organ dysfunction affecting cardiac valves, pulmonary systems, kidneys, abdominal organs, and lower extremity vasculature. Emergency open surgical repair remains the cornerstone therapeutic intervention for TAAD [9].Without surgical treatment, TAAD mortality increases by 1-2% hourly during the first 24 h post-onset, reaching 50–70% within one week [10, 11]. Although surgical intervention can successfully resect the affected aortic segment, the underlying pathological progression of the aortic wall persists, with the residual false lumen maintaining a persistent risk of dissection recurrence [12]. Studies have shown that the incidence of postoperative complications in TAAD patients remains high, and problems such as new hairpin layer, aneurysm formation or rupture, and internal leakage significantly impair the quality of life [13].

Disease experience refers to patients' subjective perceptions, cognitions, and interpretations of their health conditions, encompassing a comprehensive range of experiences from physical symptoms to psychological responses, the impact on daily life, and their interactions with the social environment [14]. Relevant studies have shown that TAAD patients have sudden and severe tearing pain in the chest and back as the initial symptom, and then undergo a series of disease experiences such as pre-hospital emergency care, inter-hospital referral, clinical diagnosis, surgery, ICU treatment, home rehabilitation, and long-term follow-up. During the long course of disease treatment, patients will have strong physiological and psychological reactions. These adverse physiological and psychological experiences may also cause changes in the internal environment of the body, increase the risk of secondary aortic intimal tears, and seriously affect the treatment effect and rehabilitation process. A qualitative study has found that patients with AD continue to struggle with physical and psychological symptoms in the short term and even years after surgery, and most patients are unable to adapt to daily life due to physical symptoms such as pain, fatigue, and neurological dysfunction during the recovery period [15]. Lang et al's follow-up study showed that 35.5% of patients with AD reported postoperative discomfort, mainly including back pain, chest pain, chest tightness, dizziness [16]. It is evident that the disease experience of postoperative patients with AD is poor, and there are related issues in physiological, psychological, and social aspects. In the current study, although some studies have investigated the health problems faced by AD postoperative patients, type A and type B aortic dissection have not been discussed and analyzed separately. Due to the different surgical treatment methods, patients with type A and type B aortic dissection experience different disease experiences and face different health problems. However, there is a lack of domestic and international research on disease experiences of postoperative patients with TAAD. Therefore, a thorough understanding of postoperative disease perception and experiences among TAAD patients is of paramount importance, as it not only helps to identify the health problems and facilitates the formulation of standardized postoperative management protocols, but also offers critical insights for optimizing rehabilitation strategies in this patient population.

Methods

Design

This study used a phenomenological qualitative research design. The key principles of phenomenological approach are that research is focused on the experience of the participant in specific phenomena with emphasis on understanding their subjective experiences and meaning construction [17, 18]. For postoperative patients with TAAD, their experiences are complex and personal. Phenomenology can capture the multidimensional nature of these experiences through deep interpretative analysis, rather than merely describing objective behavioral manifestations. Therefore, the phenomenological philosophical foundation is intrinsically consistent with the objectives of this study. This approach was chosen for this study to gain a comprehensive understanding of the perception and experience of patients through semi-structured interviews. The study followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines for evaluating qualitative research reports [19].

Sampling and recruitment

This study employed purposive sampling to recruit participants from the cardiac and vascular surgery department of a tertiary hospital in Ningxia Hui Autonomous Region of China between January and May 2023. Inclusion criteria were: patients diagnosed with Stanford type A aortic dissection; aged > 18 years; had undergone surgical treatment; possessed normal cognitive and communicative capacity; voluntary participation with signed an informed consent form. Exclusion criteria were: diagnosed with mental disorders; having cancer and/or other severe illnesses (e.g., acute renal injury, respiratory failure, heart failure). The sample size was determined according to the principle of data saturation [20]. Data saturation was reached after interviewing 14 participants, indicating that no new or surprising information was emerged during further data analysis. Two additional participants were interviewed to validate the identified themes. Finally, 16 postoperative TAAD patients were interviewed for this study.

Research team

During the preparatory phase, we assembled an experienced research team, including two primary researchers (first and second authors), four research assistants and one supervisor (corresponding author). All team members were trained in qualitative research methods courses and possessed extensive clinical nursing experience. Two primary researchers have obtained master's degree in nursing and have rich experience in cardiovascular nursing work and scientific research. Two primary researchers conducted all interviews, with one researcher leading the interview and the other assisting and recording. Three research assistants (third, fifth, sixth authors) were responsible for transcribing the interview content and data. Another research assistant (fourth authors) was responsible for support and coordination. One supervisor was responsible for negotiating any ambiguous results to ensure the reliability of the data analysis and research quality.

Data collection method

Data were collected through face-to-face semi-structured interviews. The interview outline was developed based on the research objectives, literature review and group discussion, and revised and refined after pre-interview with 3 patients. Two experts from qualitative research and cardiology nursing were invited to review the interview

Table 1 Interview outline

Serial number	Interview Questions
1	Can you talk about your deepest feelings and experiences now?
2	What symptoms do you have after you get sick?
3	What are your main concerns when you get sick?
4	What methods did you use to solve these problems?
5	What help do you need after you get sick?

outline and revise it according to expert feedback (the interview outline is shown in Table 1).

Interviews were conducted by two primary researchers who had been trained in qualitative research and had published qualitative research articles. Prior permission was obtained from nursing managers at the participating department. The purpose and significance of the study were explained face-to-face to the postoperative patients with TAAD during hospitalization by researchers, and the researchers' names and contact information were given. Interested participants voluntarily contacted the researchers via phone or WeChat. Participants who met the inclusion criteria received an explanatory statement. The statement described the study's purpose and procedures, emphasizing voluntary participation and the option to withdraw at any time without providing a reason. Participants were assured of anonymity, with their personal information remaining confidential and unidentified. Before the interviews, each participant signed an informed consent form. The interview location and time were determined based on preferences and requirements of the participants. During the interview, participants were encouraged to share their personal experiences, and no one else was present besides the participant and researchers. Each participant was interviewed only once. Each interview, conducted by two primary researchers, lasted 30-40 min, and audio-recorded in their entirety.

Data analysis method

The interview recordings were combined with field notes and transcribed into text within 24 h of each interview. The data analysis began simultaneously with data collection, and the data collection ended when data saturation was achieved. Colaizzi's method emphasizes rigorous thematic extraction while preserving participants' disease experiences through iterative cycles of description and interpretation. Hence, the data were analyzed using Colaizzi's 7-step analysis method [21]. (1) The first, second, and corresponding authors carefully read each interview transcript multiple times for basic understanding. (2) Then significant and meaningful statements were highlighted. (3) Next, they manually categorized the recurring semantic units, and determined coding numbers. (4) Coding was divided into subthemes and themes according to the significance of the study. (5) Detailed and comprehensive description were developed for each subtheme. (6) Thematic concepts were extracted. In this study, 296 codes were pooled into 17 subthemes, which were finally integrated into 4 themes. Disagreements were often resolved by discussion of the entire research team. At the same time, peer review was conducted by team members, and the data and coding were read to check their rationality and reduce research bias. (7) Eventually, the results were returned to the participants for

confirmation. According to the feedback from the participants, the results were consistent with the data they provided.

Quality control

Before the formal interview, the three participants were pre-interviewed to ensure the rationality and applicability of the interview outline, to familiarize the researchers with the process and enhance their interview and analytical skills. For patients who voluntarily participated in the study, the primary researchers provided holistic clinical care during hospitalization and conducted regular follow-up care post-discharge, fostering sustained trust throughout the research period. Interviews were conducted in a quiet and comfortable environment according to patient preference. The investigators remained a neutral attitude throughout the study. After the data were collated, we invited participants to review the information to ensure its accuracy.

Ethics statement

The ethics committee of Ningxia Medical University General Hospital approved the study. Obtain informed consent and sign informed consent forms from all interviewees, and registered their general demographic data. During the interview, interviewees could withdraw from the interview without reason at any time, which did not happen in this study. To address ethical considerations specific to qualitative research, we implemented the following measures: (1) Emotional safeguards: The emotional state of the participants was assessed prior to the interview. During interviews, trained researchers monitored participants for signs of distress (e.g., prolonged silence, emotional expressions). Immediate breaks or termination were offered, with optional psychological support referrals (unused). (2) Anonymity protection: Audio recordings were anonymized using participant codes (P1-P16) and stored on password-protected storage Card. Transcripts removed identifiable information. (3) Participant autonomy: Interviews were conducted in private rooms (non-treatment areas) to minimize influence. Participants later reviewed summary excerpts to confirm accurate representation of their experiences.

Results

Interviewees general information

A total of 16 post-surgical patients with TAAD, twelve males and four females, were interviewed in this study and were designated as P1-P16. The mean age of the participants was 42.6 ± 10.41 years, as depicted in Table 2.

Interview results

Four themes related to disease perception and experiences in post-surgical patients with TAAD were identified through semi-structured interviews: (1) significant symptom burden; (2) complex and varied psychological experiences; (3) different coping styles; (4) diverse needs for health services. (see Table 3)

Themes 1: significant symptom burden

Symptom disturbance is an important health problem faced by patients and induces many adverse effects on their physical, psychological, social functions and disease rehabilitation.

(1) memorable chest and back pain

Most patients in the study described pain as the first symptom. The pain is often described as tearing or

 Table 2
 Basic data of patients

Patient code	Age(years)	Gender	Marital status	Degree of education	Profession	Time after surgery(weeks)	Interview time
P1	33	Male	Married	Junior high school	Auto repair worker	5	After discharge
P2	41	Female	Married	Primary school	Farmer	4	During hospitalization
P3	40	Male	Married	University	Salesman	6	After discharge
P4	54	Male	Married	College	Civil service	24	After discharge
P5	31	Male	Unmarried	Junior high school	Freelance work	8	After discharge
P6	33	Male	Married	Primary school	Truck driver	11	After discharge
P7	30	Male	Unmarried	University	Company staff	16	After discharge
P8	49	Male	Married	illiteracy	Farmer	3	During hospitalization
P9	48	Female	Married	Senior high school	Retired personnel	10	After discharge
P10	56	Male	Married	College	Workers	2	During hospitalization
P11	46	Male	Divorce	College	Company staff	20	After discharge
P12	32	Male	Married	Senior high school	Freelance work	28	After discharge
P13	45	Male	Divorce	Junior high school	Workers	15	After discharge
P14	67	Female	Married	Primary school	Farmer	12	After discharge
P15	39	Male	Married	College	Company staff	30	After discharge
P16	38	Female	Married	University	Civil service	3	During hospitalization

Table 3Disease perception and experiences of postoperativepatients with TAAD

Themes	Subthemes		
Significant symptom	Memorable chest and back pain		
burden	Sleep disorders		
	Abnormal heart beating sounds		
	Dizziness		
	Discomfort of the wound		
	Numbness or tingling in the lower limbs		
Complex and varied psy- chological experiences	Fear and dread of the experience of illness Helplessness and frustration towards the current situation		
	Concerns about future life		
	A deep appreciation for the restoration of life's precious existence		
Different coping styles	Proactive psychological adjustment		
	Building confidence in recovery		
	Positive self-management		
	Scale back on socializing		
Diverse needs for health	Disease-related knowledge needs		
SELVICES	Social support needs		

knife-like, lasting and unendurable sharp pain. For example, P3 stated, "While working, the body suddenly broke out in a sweat, accompanied by a tearing sensation in the back, as if being pierced by needles, with such intense pain that the hands were left suspended in the air, unable to move." Similarly, P14 remarked, "While working at the computer, I suddenly felt as though my chest was being torn apart, prompting me to leap up from my seat in an instant."

The surgical procedure compromises the integrity of the chest, and the resulting incision causes severe pain, significantly impeding patient recovery. For instance, P3 said, "The chest pain was particularly severe, significantly disrupting sleep and rest, with the pain being more pronounced when lying on the side." Similarly, P11 expressed, "I experienced a sharp, excruciating pain in my chest, which made breathing and swallowing extremely painful. The pain was so intense that I eventually passed out and lost consciousness."

(2) sleep disorders

Due to sudden illness or surgical trauma, some patients experienced varying degrees of difficulty falling asleep and a decline in sleep quality. P1 noted, "After being discharged from the hospital post-surgery, I was only able to sleep for two hours each night, with the remaining time characterized by an inability to fall asleep." P5 said, "I just couldn't fall asleep, staying awake all night, and when I couldn't sleep, I would pace around the room."

(3) abnormal heart beating sounds

Patients typically were required artificial vascular replacement for the ascending aorta. The constriction of the artificial vessel and the impact of high-velocity blood flow result in altered precordial sensations compared to their pre-disease state. For example, P12 stated, "The sound of my heartbeat was different from before, and my family member sleeping next to me could also hear the 'thumping' sound." P5 said, "I felt like there's a hammer on my heart." Likewise, P13 revealed, "Recently, I have experienced a sensation of chest tightness, as if an iron lid was pressing on my chest, accompanied by noticeably prominent heart sounds."

(4) dizziness

Periaortic hematoma compression and postoperative hemodynamic changes in the ascending aorta can impair cerebral perfusion, leading to dizziness. In the interview, some patients said that dizziness seriously affected their daily life. For instance, P5 said, "Sitting was particularly dizzy, sometimes I felt like I wanted to fall down, couldn't do anything." P8 noted, "Dizziness when lying on the bed feel roof were hanging turn, dared not move, a move dizzy."

(5) discomfort of the wound

In the interview, some patients expressed swelling, tightness, itching or other discomfort in the wound site after surgery. P1 said: "Lying for a long time to turn over or do something, I felt the chest cavity has a split feeling." Similarly, P4 remarked: "If you slept on your side, the wound squeezed together, and then you lay flat and it felt like the wound was splitting."

(6) numbness or tingling in the lower limbs

Due to the differences in surgical duration and surgical approach, the blood supply to the distal extremity of the patient becomes insufficient. Some patients report numbness, tingling, and other lower limb symptoms after surgery. P7 revealed: "Walking a few steps or up the stairs caused numbness on the soles of the feet and soreness in the calves......Sometimes, the soles of the feet felt particularly thick and bulky, making the sensation of walking feel unreal." P14 remarked: "When you sit down or go to sleep, you might experience a sudden twitch, a needlelike prick, or a stinging sensation in your leg."

Themes 2: complex and varied psychological experiences

The psychological experience of patients is complex and diverse, and full of challenges. Some patients have indicated that they may experience different psychological states at different stages of the disease. Adverse psychological experiences can affect disease treatment and rehabilitation. A positive psychological experience helps to enhance recovery confidence and improve the quality of life.

(1) fear and dread of the experience of illness

TAAD usually has an acute onset, rapid progression, and obvious initial symptoms, which cause a certain degree of psychological stress to patients and make them prone to anxiety and fear. For example, P2 expressed, "This illness fills me with constant dread, as any sudden onset of pain can trigger a racing heartbeat. Even now, reflecting on it, I still feel a lingering sense of fear." P5 remarked, "Initially diagnosed at the county hospital, I was urgently transferred by ambulance to the provincial hospital where the diagnosis was confirmed. The doctors warned me that the disease could be fatal at any moment, leaving me in a state of profound fear."

(2) helplessness and frustration towards the current situation

The disease-induced physical dysfunction renders some patients incapable of fulfilling their expected roles, leading to the disruption of their established lifestyle patterns and resulting in diminished social participation. P1 said: "You know, after going through such a major surgery, it's only natural to feel a bit off, you know? I mean, there are so many things I can't do right now, and it's really getting me down." Similarly, P12 expressed, "It's been nearly several months since my surgery, and I still can't do much. Even simple tasks like mopping the floor or bending over make my shoulders ache intensely. It's so frustrating!"

(3) concerns about future life

The potential complications associated with artificial blood vessel implantation have raised concerns among patients about their ability to successfully reintegrate into normal social and professional environments. For example, P2 noted, "I am just worried about my normal life in the future. I am only 40 years old, not 50 or 60 years old. Do you think I can live without going out to work?" P3 similarly stated, "The economic income of the family is uncertain, and there is no fixed income;.....If you change your career and start a new one, you will need some time to adapt. How to say this, you are a little worried about your future life."

(4) a deep appreciation for the restoration of life's precious existence

The mortality rate of patients with TAAD increases over the passage of time. Active surgical treatment is needed shortly after the onset of the disease, and surgery is the only way to save patients' lives. During interviews, some patients expressed profound gratitude for their second chance at life. P2 revealed: "My mother and sister both passed away from this disease. They didn't undergo surgery, but I did. I'm truly fortunate, really lucky." P11 remarked: "I've already reported to Death once; what else is there to worry about?......My life was pulled back from Death's hands."

Themes 3: different coping styles

The coping style of patients determines the development of the disease. A positive coping style can help improve psychological and physiological states, enhance treatment effects, and increase quality of life, while a negative coping style may bring negative effects.

(1) proactive psychological adjustment

In this study, some patients demonstrated accurate disease awareness and adopted positive psychological adaptation to their condition. For instance, P2 said: "At this point, I've learned to let go of everything and not to overthink things. After all, I've been through major surgery, and I fully understand my condition." P16 remarked: "Since my body has developed this condition, the best approach is to actively pursue treatment and maintain a positive mindset. Facing the illness head-on and finding ways to overcome both the physical challenges and postsurgical factors is my philosophy - tackle it positively....

...I've always been someone with a good mindset, able to take things in stride."

(2) building confidence in recovery

Building confidence in disease recovery helps patients actively face the challenges of the disease, enhance their resistance and self-regulation ability, and allows them to better cope with difficulties and challenges during the treatment and rehabilitation process. P4 commented, "I'm feeling much better now compared to before. The wound has improved to the point where I can turn over without pain. Back in the hospital, the pain was so intense that I couldn't even move. Now I can turn over by myself, and I'm confident that I'll continue to recover gradually." Similarly, P6 said, "Now it is not as serious as before, and I believe I will recover......The main task now is to recuperate and take care of yourself."

(3) positive self-management

During the interviews, some patients demonstrated good cognitive and executive abilities, enabling them to actively seek out information about their disease and engage in proactive self-management. For instance, P7 stated: "I did some online research about Stanford type A aortic dissection, and it seems that with proper blood pressure control and regular check-ups, it shouldn't cause major problems." P16 commented: "I measure my blood pressure two to three times daily, take my medication on time, and always keep it well-controlled to avoid significant fluctuations."

(4) scale back on socializing

Some patients deliberately reduce their social activities in order to avoid the influence of bad behaviors such as smoking and drinking during work and social gatherings. P4 noted: "Nowadays, when friends joke about drinking or going out, I just don't join in anymore. I've decided to skip those gatherings altogether—no more drinking, no more going out." P11 expressed: "I've stopped attending friends' gatherings because I'm afraid I might give in to drinking or smoking, which would really worsen my condition. So, I've decided it's better to just avoid them altogether."

Themes 4: diverse needs for health services

Timely satisfaction of health service needs has a positive impact on the physical, psychological, social, and economic status of patients, while unmet needs may bring about a series of negative effects.

(1) disease-related knowledge needs

The acquisition of disease-related knowledge is the foundation for patients to make treatment choices and effective self-management. To meet the demand for disease-related knowledge, patients gain a deeper understanding of their condition, which prompts them to take more actions to control the disease. In interviews, some patients expressed worries about their recovery due to lack of disease-related knowledge. For instance, P6 said: "I'm not sure if I need to add any more medications or treatments at this point, or how long this treatment plan needs to be maintained." P14 similarly stated: "I'm not sure whether this pain is due to sleeping too long and putting pressure on it, or something else. Honestly, as long as it's just normal pain and not caused by something serious, I'm fine with it."

(2) need for follow-up guidance

Patients with TAAD often transition from acute disease management to chronic care, requiring long-term or even lifelong follow-up and guidance. In these interviews, each patient spoke of the need for professional guidance from medical staff during the follow-up. P13 commented: "I can't understand the results from my follow-up medical examination, so I'm hoping a professional doctor can help explain each indicator." P15 expressed: "After discharge, I'm unsure about what specific steps to take to reduce the risk of complications and minimize the impact of the disease on my daily life. It would be ideal to receive guidance from a healthcare professional."

(3) social support needs

TAAD has a sudden onset, requiring both patients and their families to actively prepare for its challenges. Society and hospitals should also provide necessary resource support services to help patients better cope with the disease, thereby mitigating its impact. For instance, P8 remarked: "Could we organize a platform for wardmates to share their experiences and feelings about managing the disease, allowing us to learn practical strategies from one another?" P14 similarly stated: "The treatment for this illness has cost nearly 300,000 yuan. We've borrowed some money from relatives and friends, but with the low reimbursement rate from our medical insurance, the financial burden on our family remains significant. We are hoping to receive some form of government assistance."

Discussion

Develop symptom management strategies to alleviate patients' symptom burden

TAAD is predominantly treated through open-chest surgery. Due to the nature of the disease and the surgical trauma, the integrity of the aortic vessels and thoracic region is compromised, rendering patients susceptible to health issues such as pain, impaired circulatory function, and diminished physical capacity during course of the disease. The results of this study show that thoracodorsal pain is a symptom that patients with TAAD must experience, which causes significant distress in their rehabilitation process. Among all clinical symptoms, pain demonstrates the highest prevalence, severity, and level of distress for patients. This finding aligns with Mette et al.'s interview-based insights on post-discharge experiences in aortic dissection patients [22]. Pain not only induces a spectrum of adverse physical experiences and psychological distress in patients, but also triggers systemic alterations in the internal environment. These changes are characterized by increased sympathetic nervous system activity and elevated secretion of catecholamines, resulting in enhanced catabolism, elevated blood pressure, and accelerated heart rate. These pathophysiological responses significantly exacerbate the risk of secondary tearing in the aortic intima. Therefore, healthcare professionals should prioritize the assessment and intervention of pain in patients with TAAD. In this study, interviewees expressed other symptoms experiences, such as sleep disorders, abnormal heart beating sounds, dizziness, discomfort of the wound, numbness or tingling in the lower limb. The results of Lang et al.'s telephone follow-up survey of discharged aortic dissection patients closely mirrored those of the current study [16]. Kennon et al. highlighted that adverse symptom experiences can adversely affect an individual's ability to participate in daily life and return to work [23]. Alleviation of physical symptoms serves as a fundamental prerequisite and essential preparatory component for facilitating patients' disease recovery [24]. Currently, the management of symptoms in TAAD patients during hospitalization primarily relies on pharmacological interventions, while research on post-discharge symptom management remains substantially limited. Therefore, healthcare professionals should maintain surveillance

of diverse symptomatology throughout the disease and investigate complementary non-pharmacological therapeutic modalities to alleviate patients' symptom burden. It is recommended to establish a symptom management model led by cardiac surgery specialist nurses, and to enable the formulation of personalized and feasible symptom management strategies based on comprehensive patient feedback. The purpose of these measures is to help patients relieve physical symptoms and improve the quality of life.

Early identification of psychological problems and timely psychological support

The psychological experience of patients with TAAD is often complex and challenging. The interview results showed that most of the patients were prone to fear, selfblame, worry and other negative emotions, while severe cases could develop anxiety, depression and other psychological experience. This experience may be attributed to multiple interrelated factors, including the abrupt onset of the condition, special operation methods, substantial burden of physical symptoms, limited diseasespecific knowledge, and insufficient self-management efficacy. In Lee's study, aortic dissection patients also described extreme emotional distress and psychological problems that had far-reaching consequences [25]. Research conducted by Bouchard et al. has demonstrated a significant correlation between cardiovascular diseases and emotional disturbances [26]. Negative emotional and adverse psychological experiences can lead to severe detrimental consequences, including appetite suppression, sleep quality deterioration, and compromised immune function [27]. These physiological alterations may subsequently diminish patients' confidence in rehabilitation therapies, reduce social engagement, and ultimately result in impaired quality of life. Furthermore, such psychological distress is associated with increased mortality rates and elevated risk of recurrent cardiovascular events. A small number of respondents in this study also reported positive psychological experiences, expressing happiness for the recovery of life. These experiences can facilitate positive cognitive transformations and enhance rehabilitation confidence and motivation for patients, thereby enabling them to adopt appropriate emotion regulation strategies, to engage in lifestyle modifications, and to implement effective self-management of condition. Therefore, healthcare professionals should assist patients in establishing effective psychological defense mechanisms and adopting positive coping strategies. Primarily, this involves enhancing disease-specific education to reduce patients' negative perceptions of their condition and improve their sense of disease control, thereby mitigating unnecessary fear and anxiety. Subsequently, patients should be encouraged to express their emotional experiences and utilize therapeutic communication techniques, including verbal guidance and positive suggestion, to reinforce patients' expectations of favorable treatment outcomes and self-management efficacy, ultimately enhancing their confidence. Finally, comprehensive psychological support is essential throughout the therapeutic process, encompassing professional guidance from healthcare providers, emotional support from family members, and psychological interventions when indicated.

Advocate effective coping and promote post-traumatic growth of patients

As a cardiovascular condition with exceptionally high mortality rates, TAAD is characterized by its abrupt onset, frequently accompanied by severe somatic symptoms and complex psychological problems. When patients experience these traumatic events, ineffective coping methods may precipitate psychological crises that potentially compromise the physiological healing process. Patients in this study adopted active psychological adjustment, active disease management, building selfconfidence and reducing social interaction to cope with disease trauma. Research evidence indicates a positive correlation between post-traumatic growth and adaptive coping strategies, including active confrontation and avoidance coping [28]. The adoption of appropriate coping strategies constitutes an essential foundation for facilitating post-traumatic growth [29]. Excessive preoccupation with disease prognosis or exposure to negative disease-related information from external sources may exacerbate patients' psychological distress. Guiding patients to redirect their attention and engage in active psychological adaptation can facilitate their recovery from traumatic experiences, enabling them to develop new cognitive frameworks and perspectives when confronting traumatic events. Building self-confidence can promote patients to adopt positive disease management behaviors, find ways to solve difficulties by themselves, and achieve post-traumatic growth. Therefore, medical staff should promptly assess individual coping strategies and assist patients in adopting effective approaches to manage negative emotions. With a positive attitude, motivating oneself, looking for hope in difficulties, and promoting the occurrence of post-traumatic growth for patients.

To build a diversified support system to Meet the care needs of patients

Needs represent the outcome of an individual's subjective cognitive appraisal, and the fulfillment of these needs can potentially alter patients' perception of their current state while simultaneously enhancing their comfort levels and overall well-being. The results of this interview showed that most of the patients lacked disease-related knowledge and had a high demand for follow-up guidance after discharge. This may be related to the lack of popular science on aortic dissection, as well as the fragmentation and informality of disease-related knowledge acquisition. Meeting patients' needs for disease-related information serves as the foundation for enhancing their disease perception, self-management capabilities, and coping skills [30]. In another study, the authors discovered a deficiency in disease knowledge and awareness among patients with AD, highlighting the need for improved health education [31]. Several studies have indicated that when patients present with disease-related symptoms, a higher level of knowledge regarding the disease is associated with enhanced self-efficacy in coping with symptoms [32]. This increased self-efficacy can mitigate the adverse consequences of discomfort and improve the quality of life for patients, thereby facilitating their recovery. Moreover, it also contributes to the efficient utilization of medical resources [33]. This finding underscores the necessity for healthcare professionals to proactively enhance public education and systematic disease knowledge dissemination regarding aortic dissection. Medical staff should provide comprehensive disease-related information and self-management skills to patients through diversified educational approaches, including health education manuals, interactive online-offline platforms, and science communication articles, thereby addressing patients' multidimensional care requirements. In addition, in this interview, all patients interviewed mentioned the financial problems they faced due to their disease treatment, which placed their families in difficult situations. It is suggested that the government and medical insurance departments can increase the reimbursement rate and formulate relevant policies to support patients through the difficulties.

Limitations

While this study provides valuable insights into the disease experiences of postoperative patients of TAAD, several methodological limitations should be acknowledged. First, phenomenological analysis inherently relies on subjective interpretations of participants' narratives, which may introduce interpretive biases despite rigorous efforts to bracket preconceptions through team discussion. Second, although researcher bias was mitigated via iterative team discussions and member checking, the co-construction of meanings between researchers and participants remains an unavoidable aspect of qualitative inquiry. Third, the sample size and single-center recruitment from a tertiary hospital may limit the transferability of findings to broader populations, particularly those in limited medical resources settings or with varying cultural contexts. These constraints highlight the need for future multi-center studies with longitudinal designs to enhance theoretical saturation and cross-validate emergent themes.

Conclusion

This study identified four primary issues in disease perception and experiences of postoperative patients with TAAD through in-depth interviews: significant symptom burden, complex and varied psychological experiences, different coping styles, diverse needs for health services.

The findings promote professionals' understanding of disease progression, and provide a reference to better guide clinical practice.

Abbreviations

TAADStanford type A aortic dissectionADAortic dissection

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Author contributions

Conception and design of the research: Shuangdui Ji, Donglian Zheng, Guangli Mi. Acquisition of data: Shuangdui Ji, Donglian Zheng, Data transcription: Shilin Ma, Fuzhen Ma, Changqi Yin. Analysis and interpretation of the data: Shuangdui Ji, Donglian Zheng, Guangli Mi. Obtaining financing: Fuzhen Ma, Shuping Guo. Writing of the manuscript: Shuangdui Ji. Critical revision of the manuscript for intellectual content: Donglian Zheng, Guangli Mi. All authors read and reviewed the final draft.

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Data availability

The datasets used and/or analysed during the current study available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with the declaration of Helsinki. This study was conducted with approval from Medical Research Ethics Review Committee of Ningxia Medical University General Hospital. A written informed consent was obtained from all participants. Approved No. of ethic committee: KYLL-2021-584. Registration number ChiCTR2100050468. Registration Date:2021-8-27.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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