Home Coping Strategies for Fatigue Used by Patients With Lung Cancer Receiving Chemotherapy in Rural China: A Qualitative Study

Xiaomeng DONG1 • Jianying PENG2 • Xingxing Li3 • Qiyuan ZHAO4 • Xiuwei ZHANG5*

ABSTRACT

Background: Cancer-related fatigue, a distressing symptom, is frequently reported by patients with lung cancer as increasing in severity with the number of rounds of chemotherapy. Yet, patients and healthcare providers are challenged to control this fatigue. Thus, healthcare providers must have interventions to effectively enhance coping engagement in patients with lung cancer.

Purpose: The aims of this study were to explore how patients with lung cancer in a rural area of China undergoing chemotherapy cope with the fatigue at home and to summarize their strategies.

Methods: A descriptive qualitative research approach was used, and data were collected using semistructured interviews. Sixteen patients with lung cancer with chemotherapy-related fatigue living in rural communities were recruited from a large, tertiary teaching hospital in Huzhou in eastern China. The transcripts of the interviews were analyzed using content analysis.

Results: Coping strategies for cancer-related fatigue were delineated into the three themes of (a) psychological adjustment, (b) efforts to change lifestyles and act as a Chinese health practitioner, and (c) relying on social support.

Conclusions/Implications for Practice: The participants in this study provided information on a variety of approaches to reducing/relieving cancer-related fatigue that were influenced by Chinese culture. Healthcare providers and patients may work together in clinical settings to identify appropriate, effective coping solutions and then to incorporate these into the regular care regimen to help patients transition between hospital and home.

KEY WORDS: coping, lung cancer, chemotherapy, cancer-related fatigue, qualitative research.

Introduction

Lung cancer (LC) is reported to be the most common cancer with the highest morbidity and mortality rate in China (Wang et al., 2019). The annual mortality rate of LC in China (626,000; Siegel et al., 2017) is considerably higher than that in the United States (155,870; Siegel et al., 2017) and the United Kingdom (over 46,000; Gemine et al., 2019). Recently, new LC treatment strategies, including surgery, combined chemotherapy and radiotherapy, and molecular targeted therapies, have been introduced (Kwon et al., 2020). The expansion of treatment opportunities in rural China has significantly improved survival rates in 5-year relative cases (J. Wu et al., 2020). Although chemotherapy treatment is a widely used treatment option for patients with LC, an estimated 80%–96% of patients undergoing this treatment experience cancer-related fatigue (CRF; Horneber et al., 2012). As defined by the National Comprehensive Cancer Network, CRF is a persistent and distressing subjective sense of physical, cognitive, and/or emotional tiredness or exhaustion related to cancer or its treatment that is not proportional to recent activities and that interferes with physical and psychosocial function, threatening patient health (Scott et al., 2011) and considerably impacting quality of life (H.-L. Chen et al., 2018).

Rural areas generally have higher rates of patients with final-stage LC than urban areas (Cao & Chen, 2019). Weaver found survivors of LC in rural areas to be more likely than their peers in urban areas to report distress (Andrykowski et al., 2017). In China, chemotherapy cancer centers are located primarily in large, urban hospitals that are difficult for residents of remote rural communities to access. Moreover, patients in rural communities often have insufficient access to health instructions from health professionals. Close monitoring and follow-up from healthcare providers have been shown to...
promote the effective treatment of patients with LC (Can et al., 2004). Medical care services in China are disproportionately distributed among rural and urban populations (Zhang et al., 2017). Moreover, after hospital discharge, patients are largely in charge of managing their own illness and recovery to health. Some take proactive measures to reduce the effects of their disease and to cope with related fatigue and other symptoms (Bahrami et al., 2015). A systematic review highlighted the benefit of several nonpharmacological interventions, including physical activity, psychotherapy, and acupuncture, in overcoming fatigue (C. Wu et al., 2019). However, despite the known, negative effects of CRF, little is known about the subjective perceptions toward this type of fatigue among patients living in rural areas. Whether and how they cope with these symptoms between chemotherapy visits are also underestimated in rural areas. Whether and how they cope with these symptoms between chemotherapy visits are also underestimated by clinicians (Ebede et al., 2017).

Recently, researchers have focused increased attention to providing person-centered care in a people-centered way. Taking a person-centered approach helps healthcare providers better understand and assess the individual needs and preferences of patients (Lawford et al., 2018). Such individualized and holistic coping engagement has played an important and active role in reducing CRF and optimizing the health of patients with LC during their rehabilitation (Feldthuysen & Mannerkorpi, 2019). However, little research has examined related coping strategies from the perspective of patients living in rural areas. It is crucial that healthcare providers promote the self-coping abilities of these patients to improve their continued recovery to health at home.

The purpose of this qualitative study was to explore the coping strategies of patients with LC experiencing symptoms of CRF during chemotherapy in rural China in the post-hospital-discharge recovery period.

Methods
Study Design
This descriptive qualitative study (Sandelowski, 2010) was designed to explore and gain a comprehensive overview of the strategies used by patients with LC to cope with CRF while undergoing chemotherapy. The descriptive qualitative research approach is a preferred method for studies that involve a series of descriptions of everyday terms including who, where, and what (Perry et al., 2020).

Participants and Setting
Maximum variation and snowball sampling (Saab et al., 2017) was the purposive sampling strategy used in this study to recruit a heterogeneous sample of patients with LC experiencing CRF from the oncology clinic of a university hospital in eastern China. The eligibility criteria included resident of a rural area, diagnosis of LC and CRF, age of 18 years or older, having received more than one cycle of chemotherapy, Brief Fatigue Inventory score of $\geq 4$ (Mendoza et al., 1999), resident of a county, and having knowledge of their condition and the ability to express their fatigue-reduction experience. In the recruitment process, no restrictions were imposed on the type, site, or stage (except for Stage IV) of LC. The participants were required to meet the diagnosis of CRF outlined in the International Statistical Classification of Diseases and Related Health Problems, 10th Revision (Yeh et al., 2011), and fatigue was classified into three levels: mild (1–3), moderate (4–6), and severe (7–10; Lou et al., 2013). Individuals with moderate and severe fatigue experience multiple symptoms of distress and are generally the most well-informed individuals (Bastani et al., 2014). Finally, a demographic datasheet was used to collect gender, cancer stage, and chemotherapy treatment information.

Data Collection
In this study, the face-to-face interviews employed a semistructured approach and were conducted from November 2018 to January 2019. The first author had received extensive training in grounded theory research and phenomenology. She explained to each participant the purpose of the study and relevant details such as the interview method used and the need for voice recording. All collected information was kept confidential. Each interview lasted for about 1 hour, and most were conducted in the clinicians’ office. Only two researchers and one participant were in the room during these interviews. Three of the 16 participants were interviewed twice because their first interviews were interrupted by their health problems or by unexpected visits from relatives. To better understand the participants’ situations, after obtaining their written or verbal consent, the first author reviewed relevant information in their medical records. Instructions for the interview were provided by the corresponding author.

Participants were recruited and interviewed until no new information emerged, at which point data saturation was deemed to have been reached (Ryan & Noonan, 2019).

The interview guide included the following questions: (a) feelings and experiences after chemotherapy, (b) opinions regarding CRF, and (c) most beneficial/effective coping strategies for CRF used at home. The researcher adjusted the manner and sequence in which questions were asked based on the circumstances in each interview session. Every effort was made by the researcher to maximize the dialogue and maintain an empathetic understanding of the symptoms and feelings of the participants. During the interview, observational notes on the participants’ affective responses (e.g., laughter, crying, sadness, impatience) and sensitive words were recorded to provide more sufficient contextual information in subsequent analysis (M. Wu et al., 2010). All of the participants were given psychological counseling by the first author (who was qualified as a professional counselor) after being interviewed.

Data Analysis
Qualitative content analysis was adopted to accurately summarize the participants’ actual coping strategies for CRF during chemotherapy. This analysis approach is commonly used
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by researchers to discover and describe the focus of individual attention (Graneheim et al., 2017).

The content of each voice recording was transcribed verbatim and anonymized within 24 hours of each interview. Two of the researchers read and reread the transcribed text to become immersed in the data and gain a more complete understanding of the whole. They were reviewed and coded separately. The transcripts related to coping strategies were extracted from the whole and drawn together into one text. Two of the coders identified the important points extracted from participants’ statements as potential meaning units (Ruan et al., 2020). Next, meaning units were condensed and labeled with a code that reflected participant statements abstractly. Similar codes may be gathered into a theme and then abstracted. The researchers identified the relationships and connections among all of the themes.

Trustworthiness

Credibility, transferability, dependability, and confirmability, as proposed by Lincoln and Guba, were examined to ensure the trustworthiness of the data (Denzin & Lincoln, 2018). Credibility was achieved by the researcher’s prolonged engagement with the participants and by member check (Karlsson et al., 2019). Long interviews and repeated questions were conducted to resolve uncertainties and help the researchers gain authentic responses from the participants. Field notes were also used to increase the credibility of the data. Particularly, when the participants used indigenous or colloquial expressions, it was necessary to check how the expression was used in the original data and coding or to consult with the specialist and participants repeatedly and accurately. In addition, all of the participants received a copy of their interview transcripts and were asked to provide their feedback to the research team. To increase the transferability of the data, the demographic and clinical characteristics were explained carefully and thick descriptions of the context, setting, and equipment were provided for the readers to assess the transferability. To enhance dependability and confirmability, an audit trail was established and research meetings were arranged regularly for the team to discuss interpretations, codes, and themes. Furthermore, the decision making at every stage of the study was documented for later tracking and review.

Ethical Considerations

Ethics approval was obtained from the institutional review boards of Huzhou University and the hospital in which the study was conducted (2014-201). Patients meeting the inclusion criteria volunteered to participate in the study and provided written informed consent.

Results

Sixteen patients with LC who were currently undergoing chemotherapy and were diagnosed with CRF volunteered and were enrolled as participants. The participants included 12 men and four women, and all lived in rural communities in China. Their mean age was 66 years (range: 38–80 years), their mean number of chemotherapy cycles was 4 (range: 1–10 cycles), and their mean Brief Fatigue Inventory score was 7.9. Most were married and had a relatively low level of formal education. Four had been diagnosed with small cell LC, and 13 were at an advanced stage of cancer (≥ III). The data collected on participant characteristics are presented in Table 1, and on the basis of the results of content analysis, the three themes are summarized in Table 2.

Theme 1: Psychological Adjustment

This theme comprised the two subthemes of “adjust my thoughts and accept the fluctuating fatigue” and “reflect on what I have and seek satisfaction.”

Adjust my thoughts and accept the fluctuating fatigue

Despite the fact that fatigue minimized their passion to engage in life activities, the participants felt that they had no alternative but to accept their fatigue. They expressed that they tended to be in a positive psychological state and believed that positive thoughts could lengthen their life.

Sometimes I am nerveless and tired without any interest in anything. But sometimes, I am not too bad. I have no idea to overcome the fatigue. The only thing I can do is to persuade myself and adjust my thoughts to defeat the fatigue. What matters most is the attitude toward it. I have to accept. Think more positive aspects of my life, maybe I will live longer. (Patient 12)

Several of the participants seemed frightened and noted that their fatigue worsened when they were told that they had cancer. They tried to relax and cope with these troublesome and unbearable symptoms while falling into the plight.

Actually, when I was told that fatigue is around me, I thought that the distress would defeat me. After a long duration, I gradually found that nothing will change when you are frightened to death. I do not know why I persuaded myself to accept the fatigue. The symptom is complicated and needs a long time to adapt or recover. Try to calm down. (Patient 8)

The participants described that it was difficult to understand why they became fatigued. Because of a lack of knowledge about CRF, they shifted their attention to avoid fatigue-related thoughts.

I do not, do not want to think anything. I cannot control it. It is so overwhelming and I have no energy to do anything. Let it go. It is different from common tiredness. I really do not know its cause. Now that I cannot figure it out, stop thinking about it. Move on! (Patient 11)
Stop overthinking. Just eat what you want to eat, laugh, and play. Repeatedly mentioning “tiredness, unhappiness” cannot change the reality of being fatigued. Try to think simply and you may live another year or two. (Patient 15)

Some of the participants even took their own fatigue experience as examples to encourage other patients to defeat their fatigue.

Table 2
Themes and Subthemes of Participant Coping Strategies

| Theme                      | Subtheme                                                                 |
|---------------------------|--------------------------------------------------------------------------|
| 1. Psychological adjustment | (1) Adjust my thoughts and accept the fluctuating fatigue               |
|                           | (2) Reflect on what I have and seek satisfaction                         |
| 2. Efforts to change lifestyles and act as a Chinese health practitioner | (1) Eat nutritious food                                                  |
|                           | (2) Rest well                                                            |
|                           | (3) Take part in recreational activities                                |
|                           | (4) Take more exercise                                                  |
|                           | (5) Learn more knowledge about health management                         |
| 3. Relying on social support | (1) Family support                                                      |
|                           | (2) Nurse support                                                       |
|                           | (3) Peer support                                                        |

I persuaded my oldest sister, who was diagnosed with the same disease several times, to conquer her fear and fatigue. She lived to be 80 years old. I think she must have encountered many difficulties and frustration. Fatigue was just a small problem for her. She must have been able to defeat it. (Patient 1)

Several participants stated that their life was determined by their personal fate (ming). They noted that they had no alternative but to accept the fact that they would live with CRF and realized the importance of staying confident during their long-term struggle with CRF.

It is my fate. When I was born, my life was set by my “ming.” Life is destined. I must encounter such distressing symptoms my whole life. I am ready for a long battle with fatigue. (Patient 15)

Reflect on what I have and seek satisfaction
During the process of revaluing what they have now and what they once had, the participants often compared themselves with other patients. They felt fortunate to live longer and to have a lower level of fatigue. They were content with their social status.

I am nearly 80 years old. It is enough for me to live another decade. Everyone will get older and it is an undeniable fact. I am so lucky that I was diagnosed with lung cancer when I was 75 years old, while others were diagnosed with lung cancer in their youth. (Patient 5)
I have gone through the toughest days in the past. I am proud of my social status. When I worked, I was a manager. (Patient 10)

Few people can live to 70, but I can. (Patient 1)

In addition, participants who held Buddhist beliefs shifted their focus from the future to the present to live in the moment.

Buddha told to me that all obstacles I encountered today are the result of what I did in the past. What I am doing now also influences my future. I should try my best to cherish what I have and seize the moment as much as I can.

Theme 2: Efforts to Change Lifestyles and Act as a Chinese Health Practitioner

This theme was further subdivided into five subthemes: eat nutritious food, rest well, take part in recreational activities, take more exercise, and learn more about health management.

Eat nutritious food

Nutritional intake is important for patients with CRF. The participants mentioned that having a poor appetite and having negative emotions may lead to poor immune system function and impair recovery. Three categories of food, including “nutritious food,” “herbal tonics,” and “Chinese herbal medicines,” were introduced by the participants.

Some participants insisted that they should eat all kinds of nutritious foods to meet their nutritional demands. Patients themselves must determine which kinds of food are beneficial.

Eggs, seen as “yin,” should not be eaten too much. I eat an egg each day and drink home-made soybean milk. We should eat more protein-rich foods, different vegetables, and cereal. I love seafood. It has high nutritional value. Vegetable juice is also a good choice. Cucumber juice and tomato juice are also rich in nutrients. (Patient 2)

Participants stated that, even if they were distressed and had no appetite, they always persuaded themselves to take in more food. One participant mentioned what to eat and how to eat:

We need to diversify our diet and eat multiple small meals. It is important to have a balanced diet. We should eat nutritious food but in moderation. Eating too much or too little is not good. Even if you have no appetite, you’d still better eat. If no nutrients are taken in, your condition will become worse. (Patient 13)

The participants were also very enthusiastic about herbal tonics.

It’s good for health. I have eaten some dendrobium and Chinese caterpillar fungus (Chinese medicinal health products for nourishment) and they had a good effect. (Patient 3)

The participants showed their preference for Chinese herbal medicines but provided no detailed information. Although these herbal medicines work slower than Western medicine, they act to both prevent and cure disease (fatigue).

Persist in taking herbs more than 3 months and it will show good results without any major side-effects. Although it works slowly, the efficacy is apparent. (Patient 4)

Rest well

The participants in this study all lived at home and gradually became conscious of the importance of resting. In their opinion, resting helps distract from their troubles and things they are unable to do, while providing more time to think about how to live.

Go to the park and bask in the sun while drinking tea. I urge myself to spend a lot of time in the sunshine—about 7 ~ 8 hours a day. Lying around in the sun makes me warm and relaxed, and I never fear the cold. (Patient 14)

Take part in recreational activities

Participants described that they were fond of participating in leisure activities. Some expressed enjoying going to the temple to be surrounded by huge, centuries-old trees; playing Chinese chess and mahjong in community senior centers; and participating in farm tourism.

I always go to the temple and particularly love the shade under the huge trees. Buddha is looking at me and will guide me toward a better situation. (Patient 12)

All my friends like drinking tea. It is relaxing for me, a patient undergoing chemotherapy, to go out of the house and drink tea with friends. (Patient 13)

Some participants enjoyed where they lived and going outside to commune with nature.

I like going to the farmhouse in the mountains where the air is so fresh and clear that my lungs can be purified. Eating dinner, breathing clean air, walking along the windy, twisted mountain road…. (Patient 2)

Take more exercise

Exercise regimens were expanded gradually based on participant conditions. The participants mentioned two effective types of aerobic exercise: brisk walking and jogging. Some liked to exercise in the fresh air, starting slowly and gradually increasing their exercise intensity. Twenty minutes of exercise per session was enough, and most started out by doing 4 minutes of exercise only.

Usually, I get up early and go jogging. I take deep breaths while jogging. Four or five minutes of exercise
was enough for me initially, and I increased the amount gradually. If I feel tired, I will sit down immediately to rest. It is important to choose a place where the air is fresh. (Patient 3)

Participants who have developed a jogging habit reported that jogging helped them reduce their fatigue.

I often felt tired in the past. But now, with the benefit of jogging, I can run several laps around the park. I feel my strength has improved. (Patient 9)

Learn more about health management

For the participants, knowledge about their disease and CRF was essential to beginning and sustaining coping practices. The participants gained important knowledge by watching TV, which is a major form of relaxation and a major source of health information. In addition, they developed their own methods to deal with CRF.

Good health shows are a resource. I pay attention to gathering and trusting health information seen on television shows. Sometimes I wrote down key information and then follow it. (Patient 4)

Theme 3: Relying on Social Support

This theme was divided into the three subthemes of family support, nurse support, and peer support. Participants sought emotional support from their families and relied on nurses’ encouragement and their peers’ disease (fatigue) narration.

Family support

Some of the participants reported that they perceived the caring from their family members. When they were experiencing loss of appetite, failings in their self-care, and fear of going out, they drew on the support of family members and other relatives to cope and to take in nutritional food, enhance their living abilities, and engage in social communications.

Gradually, I had no interest in food. I even felt that I lost the ability to smell the flavor of food. However, my husband always goes to the market and buys various kinds of vegetables to cook for me. Sometimes, I do not want to eat anything. He treats me as a baby and feeds me the food. Sometimes, I do not want to eat anything. He treats me as a baby and feeds me the food. Now I feel that I am stronger than before. I appreciate my husband. (Patient 2)

Sometimes I forget to take medicine, but my children remind me to take it. They often share something interesting with me and read the daily news for me. I know that they hope this makes me feel happy. I am becoming more and more dependent on my children. They often take time off from work to take care of me, including bathing and elimination. I am so lucky that my children are so thoughtful and dutiful. I have to admit that I am not strong. I need their help. Gradually, it appears that I have grown a lot. (Patient 10)

I have experienced fatigue. I could not sleep well and the sleep disturbance made me become more and more haggard and worn out. I hated going out. I was afraid to meet people I knew. One day, I was surprised when many relatives came to visit me. I cried. I found that they were all my supporters. They gave me emotional support. I began to encourage myself and tried to move on and come out of my house. (Patient 12)

Nurse support

Participants noted that, even after they were discharged from the hospital, they still remembered what the nurses said and did for them. The warm words and touch of nurses bolstered their fighting spirit.

I cannot forget those days at the hospital. Nurses came to ask me how I was feeling every morning. Their warm words that “we all believe that you can overcome the fatigue” made me feel their caring and support. They also gave me some little notes to cheer me up. I put them on my desk and occasionally read and re-read them. When I am feeling particularly down, it is the encouragement from nurses that rescues me from my terrible headache. (Patient 8)

When I did not feel well, they always helped me resolve my symptoms of distress. They often patted me on the back and smiled at me. They made me feel as warm as at home. (Patient 7)

Peer support

A few of the participants were fortunate to have peers who were willing to share their experiences with reducing fatigue. They were inspired by these peers’ fatigue stories and had greater hope for the future.

My neighbor was also a patient who has been fighting fatigue for many years. He told me that Job’s tears seed had the potential to reduce fatigue. He also told me what he had experienced. I was touched by his life stories. He can overcome fatigue. I can too! (Patient 3)

Discussion

Three different types of home CRF coping strategies used by patients with LC undergoing chemotherapy, including psychological adjustment, efforts to change lifestyles, and relying on social support, were explored in this study.

Similar strategies for psychological adjustment such as coping by adapting and accepting CRF have been identified in previous studies (Bootsma et al., 2020). Keeping one’s mind off negative things is a method of mental disengagement that helps people distance themselves from negative
emotions (Ghodraty-Jabloo et al., 2016). Although all of the participants had dealt with emotional distress, it seemed that CRF indirectly influenced their reevaluation and potentially primed them to be willing to undergo an attitude transition from fear to bravery and optimism. The motivation for the changes is a strong desire to hold on to life. Natasha also reported that attitude plays an important role in patients’ perceptions and helping patients cope with physical symptoms and side effects (Brown et al., 2015). Patients in one study who were triggered by fatigue were found to better appreciate what is worthwhile in life and to treasure life more (Tuominen et al., 2019). They tried not to dwell on the cause of CRF and focused on enjoying the present, which shows that the participants were attempting to control and reduce their fear and anxiety (Dragset et al., 2020). In addition, being self-motivated and seeking happiness are important for all people and particularly important to those confronting a life-threatening illness. Relatively high levels of self-recognition and positive thinking in the participants in this study were accompanied by the emergence of hope and inner growth. Within this process, they were better able to address their unmet needs and bothersome health issues and improve their coping strategies (Peng et al., 2019). Furthermore, the finding in this study that the participants encouraged themselves to achieve early recovery was also found in another study (Kang et al., 2017), which reported that patients who had a clear purpose in life were more likely to achieve happiness. Qualitative interviews are well suited to gaining insights into the inner world and health problems of patients (Abelson et al., 2019). Health professionals must be prepared to conduct interviews with patients before hospital discharge to explore their needs and help them set goals for improving their quality of life.

Some of the participants in this study expressed that their fate (ming) was determined by heaven and they were predestined to experience LC and CRF. This belief may be influenced by Chinese philosophy (Ruan et al., 2020). The ancient Chinese philosopher Wang Ch’ung posited that humanity was created by heaven and earth and believed that everyone had their individual fate (natural fatalism; Wei, 2017). However, in another study, fatalism was found to be a potential aggravator of patient anxiety and a negative influence on disease treatment (Zhao et al., 2014). Further studies on the relationship between fatalism and positive mental outlook are necessary to explore and identify the influence of this relationship on patient attitudes.

A traditional Chinese axiom is that prolonged illness transforms a patient into a doctor. With repeated hospitalizations, patients gradually realize they must rely on themselves in addition to medication to effectively control their fatigue. Thus, experiencing fatigue helps patients develop simple-but-effective lifestyle strategies, which leads them to act as practitioners in the struggle to reduce fatigue. Participant beliefs and values highlighted in this study included herbal treatments and diet therapies. According to the theory of “yin” and “yang,” eggs are classified as a “yin” food. Chinese hold that patients should limit their consumption of “yin” foods to avoid negatively impacting health (Y. C. Chen, 2001). Participants in this study acquired nutrients using “medicine and food homology” and Chinese herbal medicines. This strategy is rooted in Chinese traditional culture and diethotherapy. Many Chinese people believe certain foods to have unique medicinal tonic functions that allow their use as drugs, in line with the theory of medicine food homology (Gong et al., 2020). In a systematic review study, dietary interventions were found to be potentially effective in alleviating CRF and improving quality of life (Baguley et al., 2017). However, the dietary habits of patients should be respected and taken into consideration when healthcare providers develop dietary interventions. Several of the participants in this study expressed that they tried to act as doctors during their struggles with CRF. This finding highlights the active role that patients play in mitigating fatigue and may offer a reference for health professionals when providing culturally appropriate recommendations/guidance on medicine and diet. For example, the preferences of patients with fatigue with regard to traditional Chinese medicine versus Western medicine, vegetables versus meat, and refined grains versus whole grains should be assessed in the future.

In addition, participants in this study described that they frequently engaged in leisure activities such as hanging out in the park, breathing in fresh air, and drinking tea with friends. This finding is supported by another empirical study that reported self-care strategies to be moderately effective in patients with LC (O’Regan & Hegarty, 2017). Therefore, healthcare providers should encourage patients to try various relaxation strategies and help patients value their own self-relaxation strategies to build self-confidence in their ability to move on with life.

The participants in this study shared a belief that centuries-old trees held a spiritual connotation and represented longevity. Chinese culture has been greatly influenced by the philosophical and religious tenets of Confucianism, Taoism, and Buddhism (Ho & Brotherson, 2007). Some of the participants in this study expressed that they had entrusted their life to Buddha and received moral support from their religious faith to cope with their condition optimistically (Lui et al., 2009).

In the past, patients have been encouraged to limit their exercise and physical exertion. Today, an increasing number of trials have offered evidentiary support that exercise is safe and beneficial in preventing and controlling cancers; improving physical functions, cardiorespiratory fitness, and quality of life; and reducing CRF (Paramanandam & Dunn, 2015). The participants in this study mentioned engaging in two common types of physical activities: jogging and walking. The prevalence of these two activities may be associated with the participants’ older age, limited types of physical activities available, physical condition, and capability. Simple ways that healthcare providers may help patients cope include providing appropriate exercise education and developing goal-setting exercises.
The participants in this study enjoyed staying at home, as they were cared for and actively supported by their families, neighbors, and friends. This study differs from Jane’s study, which found that being housebound isolated patients from family members and friends (Scott et al., 2011). Echoing the finding of another qualitative study (Liao et al., 2018), families, friends, and peers accompanied participants in their fight against fatigue, which is extremely meaningful and supportive. A cross-sectional study of the supportive care needs of patients with LC found that 88.99% of participants reported the need to have family members or friends with them in the hospital (Zhang et al., 2019). In this study, the participants reported learning certain self-care strategies and obtaining health, psychological, and care-related information from family members. A previous correlational study reported that some patients with LC also experienced skin problems such as dry skin and pruritus that affected their quality of life (Chan et al., 2019). Family members and nurses, who are their main companions and supporters, should consider patients’ personalized skin care needs. Social support helps strengthen patients and keeps them moving forward in their recovery. The participants in this study reported learning from the experiences and coping strategies of their peers. One previous study reported that patients in an exercise intervention not only gained access to resources from the exercise group but were more likely to manage fatigue effectively than before because of sharing with/learning from others in the same situation (Missel et al., 2019). None of the participants in this study were members of intervention groups. In fact, the long home-to-hospital distances, low level of formal education, and poor knowledge about CRF of the participants adversely impacted their compliance with home-care guidelines and made it difficult for healthcare providers to monitor and follow up. Therefore, group-based interventions in rural China is an issue that requires further consideration and development.

**Limitations**
Several limitations to this qualitative study need to be acknowledged, and the findings should be generalized with caution. First, the study focused on a small number of patients with LC over the age of 50 years undergoing chemotherapy in one hospital. Patients living in urban areas should also be explored. To increase the generalizability of findings and raise awareness of patient self-care issues, future studies may examine the coping strategies of patients with LC from various age groups and various locations using both qualitative and quantitative methods. In addition, information such as the current fatigue score, disease duration, and ethnicity data were not collected from participants. As these factors may influence the results, they should be controlled in future studies. Furthermore, as most researchers were not religious, they may have encountered difficulties in envisioning the influence of religion on patients’ lives. Finally, some of the results were reflected in the context of Chinese culture, and further studies should be conducted in other countries and societies to examine cross-cultural commonalities and divergences.

**Conclusions**
In this qualitative study, the strategies for coping with chemotherapy-related fatigue used by patients with LC in home settings were explored. Three coping strategies were identified, including (a) psychological adjustment, (b) efforts to change lifestyles and act as a Chinese health practitioner, and (c) relying on social support. Chinese philosophical and religious tenets were found to strongly influence the strategies used by patients to cope with CRF at home. The insights gained from this study may be used to inform clinical practice and provide evidence for the further investigation of coping strategies and patient education related to fatigue in this population.

**Implications for Practice**
CRF is the most common symptom experienced by patients with cancer undergoing chemotherapy. However, little attention has been paid in clinical practice to this distressing and devastating symptom. Findings from this study have important implications for healthcare providers striving to develop targeted interventions to help patients relieve CRF symptoms in home settings. The various coping strategies described by the participants in this study provide sufficient details for healthcare providers to address CRF more comprehensively. In addition, healthcare providers should focus on exploring the inner world of patients while they are fatigued. Furthermore, the findings of this study provide significant insights into the influence of Chinese cultural beliefs on patients’ cognitive resources and food choice preferences. This study suggests that healthcare providers should tailor plans to the beliefs and needs of their patients. Although some participants’ solutions were specific to their personal situations, most of the solutions were universally applicable. Therefore, these responses may be adopted by healthcare providers as useful strategies to improve patient discharge instructions and assist patients with LC to transition from hospital to home.

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**Author Contributions**
Study conception and design: XD, JP
Data collection: XD, XZ
Data analysis and interpretation: JP, XL
Drafting of the article: XD, JP
Critical revision of the article: QZ, XZ
References

Abelson, J. S., Chait, A., Shen, M. J., Charlson, M., Dickerman, A., & Yeo, H. (2019). Coping strategies among colorectal cancer patients undergoing surgery and the role of the surgeon in mitigating distress: A qualitative study. *Surgery*, 168(2), 461–468. https://doi.org/10.1016/j.surg.2018.06.005

Andrykowski, M. A., Steffens, R. F., Bush, H. M., & Tucker, T. C. (2017). Posttraumatic growth and benefit-finding in lung cancer survivors: The benefit of rural residence? *Journal of Health Psychology, 22*(7), 896–905. https://doi.org/10.1177/1359105315617820

Baguley, B. J., Bolam, K. A., Wright, O. R. L., & Skinner, T. L. (2017). The effect of nutrition therapy and exercise on cancer-related fatigue and quality of life in men with prostate cancer: a systematic review. *Nutrients*, 9(4), Article 1003. https://doi.org/10.3390/nu9040103

Bahrami, M., Shokrollahi, P., Kohan, S., Momeni, G., & Rivaz, M. (2015). Reaction to and coping with domestic violence by Iranian women victims: A qualitative approach. *Global Journal of Health Science, 8*(7), 100–109. https://doi.org/10.5539/gjhs.v8n7p100

Bastani, P., Abolhasani, N., & Shaarafchizadeh, N. (2014). Electronic health in perspective of healthcare managers: A qualitative study in south of Iran. *Iranian Journal of Public Health, 43*(6), 809–820.

Bootsma, T. I., Schellekens, M. P. J., van Woezik, R. A. M., van der Drageset, S., Lindstrøm, T. C., & Ellingsen, S. (2020). “I have both lost and gained.” Norwegian survivors’ experiences of coping 9 years after primary breast cancer surgery. *Cancer Nursing, 43*(1), E30–E37. https://doi.org/10.1097/ncc.0000000000000656

Ebede, C. C., Jang, Y., & Escalante, C. P. (2017). Cancer-related fatigue in cancer survivorship. *Medical Clinics of North America, 101*(6), 1085–1097. https://doi.org/10.1016/j.mcna.2017.06.007

Feldthusen, C., & Mannerkorpi, K. (2019). Factors of importance for reducing fatigue in persons with rheumatoid arthritis: A qualitative interview study. *BMJ Open, 9*(5), Article e028719. https://doi.org/10.1136/bmjopen-2018-026719

Gemtine, R. E., Ghosral, R., Collier, G., Parry, D., Campbell, I., Davies, G., Davies, K., Lewis, K. E., & LungCast Investigators. (2019). Longitudinal study to assess impact of smoking at diagnosis and quitting on 1-year survival for people with non-small cell lung cancer. *Lung Cancer, 129*, 1–7. https://doi.org/10.1016/j.lungcan.2018.12.028

Ghodraty-Jabloo, V., Aliibhai, S. M. H., Breunis, H., & Puts, M. T. E. (2016). Keep your mind off negative things: Coping with long-term effects of acute myeloid leukemia (AML). *Supportive Care in Cancer, 24*(5), 2035–2045. https://doi.org/10.1007/s00520-015-3002-4

Gong, X., Ji, M., Xu, J., Zhang, C., & Li, M. (2020). Hypoglycemic effects of bioactive ingredients from medicine food homology medicinal and medicinal health food species used in China. *Critical Reviews in Food Science and Nutrition, 60*(14), 2303–2326. https://doi.org/10.1080/10408398.2019.1634517

Graneheim, U. H., Lindgren, B. M., & Lundman, B. (2017). Methodological challenges in qualitative content analysis: A discussion paper. *Nurse Education Today, 56*, 29–34. https://doi.org/10.1016/j.nedt.2017.06.002

Ho, S. W., & Brotherson, S. E. (2007). Cultural influences on parental bereavement in Chinese families. *OMEGA—Journal of Death and Dying, 55*(1), 1–25. https://doi.org/10.2190/4293-2021-5475-2161

Horneber, M., Fischer, I., Dimeo, F., Rüffer, J. U., & Weis, J. (2012). Cancer-related fatigue: Epidemiology, pathogenesis, diagnosis, and treatment. *Deutsches Ärzteblatt International, 109*(9), 161–171; quiz 172. https://doi.org/10.3238/arztebl.2012.0161

Kang, D., Kim, I.-R., Choi, E. K., Yoon, J. H., Lee, S. K., Lee, J. E., Nam, S. J., Han, W., Noh, D. Y., & Cho, J. (2017). Who are happy survivors? Physical, psychosocial, and spiritual factors associated with happiness of breast cancer survivors during the transition from cancer patient to survivor. *Psychooncology, 26*(11), 1922–1928. https://doi.org/10.1002/pon.4408

Karlsson, J., Eriksson, T., Lindahl, B., & Frith, I. (2019). The patient’s situation during interhospital intensive care unit-to-unit transfers: A hermeneutical observational study. *Qualitative Health Research, 29*(12), 1687–1698. https://doi.org/10.1177/1049733319831664

Kwon, C. Y., Lee, B., Kim, K. I., & Lee, B. J. (2020). Herbal medicine on cancer-related fatigue of lung cancer survivors: Protocol for a systematic review. *Medicine (Baltimore), 99*(5), Article e18968. https://doi.org/10.1097/md.0000000000018968
