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Research Progress of Breast Cancer Patients' Sense of Coherence

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Abstract: *According to the latest data from the World Health Organization's Agency for Research on Cancer, breast cancer has replaced lung cancer as the most prevalent disease in the world, and the incidence rate is increasing year by year, with the incidence population becoming younger and younger. Patients often experience surgery, chemotherapy and other treatments, and often have anxiety, depression and other adverse emotions, which reduce the treatment effect and seriously affect the quality of life. The Sense of Coherence is a protective psychological resource that can effectively buffer stress and maintain physical and mental health. Therefore, this paper reviews the concept and measurement tools, and the current situation of sense of coherence in breast cancer patients, and the influencing factors, in order to provide reference for clinical research on improving breast cancer patients' sense of coherence level in China.*

Keywords: *Breast cancer; Sense of Coherence; Assessment tools; Influencing factors*

1. Introduction

According to 2020 data from the World Health Organization's International Agency for Research on Cancer (IRAC) , there are 2.26 million new cases of breast cancer worldwide, which has replaced lung cancer as the most prevalent cancer in the world. As a developing country progressing at a rapid pace, the incidence of breast cancer in China has been increasing due to delayed childbirth, decreasing number of births, increased risk factors such as obesity and lack of exercise, resulting in 420,000 new cases, including 70,000 in men[1] . The traumatic experience of cancer, surgery and chemotherapy can have a huge impact on the social and psychological functioning of the patient[2]. Sense of coherence (SOC), as a positive psychological resource, reflects an individual's attitude to life and ability to use support resources when coping with stress[3] . Research[4] has shown that a high level of SOC in breast cancer patients can help patients to face the disease with a positive attitude, use various support resources flexibly, buffer stress effectively, reduce the occurrence of anxiety and depression, and improve the quality of life, which is important for promoting patients' physical and mental health. However, there are relatively few studies on SOC for breast cancer patients. Therefore, this paper provides a review of domestic and international studies on SOC in breast cancer patients, with a view to providing references for reducing the incidence of anxiety and depression in patients, improving quality of life and enhancing treatment outcomes.

2. The concept of SOC

SOC is the core concept of the beneficial health model proposed by the Israeli scholar Antonovsky[5] , 1979. It is a synthesis of an individual's overall feelings and perceptions of life, a dynamic and enduring positive psychological disposition that can effectively regulate an individual's physical and mental stress and maintain human health. It is summarised in three areas: sense of comprehensibility is the cognitive factor, when individuals are faced with significant events in their lives, they will recognise that the events are explainable, predictable and in order; sense of meaning is the motivational factor, individuals will see life as something to love and be willing to give time and energy to cope with stressors; manageability is the behavioural factor, reflecting the individual's ability to make use of various support resources[6] .

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3. Measurement tools for SOC

The Sense of Coherence-29 scale (SOC-29) was originally developed by Antonovsky[7] as a universal scale to measure people's attitudes to life in stressful situations and their ability to use support resources to maintain their health. There are 3 dimensions and 29 items, including 11 items on comprehensibility, 10 items on manageability and 8 items on sense of meaning, which have since been streamlined into the 13-item scale(SOC-13). Both scales have been shown to have good reliability and validity and have been widely used in more than 48 countries around the world among different populations such as the elderly, students and cancer patients, and the streamlined version is now mostly used by academics due to its ease of use.

The SOC-13 scale was modified in 2005 by Lei-Ping Bao[9, 10], to prove its applicability to the Chinese context. The scale consists of 13 entries, including sense of comprehensibility (4 entries), manageability (5 entries) and sense of meaning (4 entries), with 5 entries reverse scored. A Likert 7-point scale was used, with a total score of 13 to 91, with different levels of low, medium and high depending on the score, with higher scores indicating a higher level of SOC for the patient. The Cronbach's alpha coefficient for this scale was 0.76, which was in line with the foreign SOC-13 scale coefficient of 0.8. In addition, the SOC-13 scale has been validated in the breast cancer population and has been shown to be a valid tool for measuring SOC in breast cancer patients [11].

Researchers have found during general sociodemographic surveys that the SOC-29 and SOC-13 scales are not usable for practical reasons, and several scholars have developed different versions of the 3-item short form based on the SOC-29. These include the SOC-3 scale developed by Lundberg[12] , the Brief Assessment Scale BASOC developed by Schumann[13] , and the University of Tokyo Health Sociology version of the SOC scale (SOC-3-UTHS) developed by Taisuke[14] . There is also a CSOC for children[15] , family-based versions of the FSOC-26[16] , FSOC-12[17] , and others with different modifications such as 7-entry, 9-entry, 12-entry, for a total of at least 15kinds[18] .

4. Current status of SOC in breast cancer patients

Both national and international scholars have used the SOC-13 scale to measure SOC levels in breast cancer patients, with some variation in results. A study by Swedish scholar Kenne[19] on 131 breast cancer patients yielded a SOC score of 71.8±12.1, consistent with the results of Hiensch[20] , and higher than the results of Rohani[21] on 168 primary breast cancer patients in Tehran, with a average SOC score of 63.1±13.4. A study by Shen Qin[22] on 300 breast cancer patients in Anhui obtained a SOC score of 54.67±5.12, consistent with the results of Dou Wanjun[23] , and higher than the findings of Li Jing[24] (51.10±7.02), but lower than the findings of Zhao Yutao[25] (56.40±6.22).

In summary, most foreign studies have concluded that SOC scores range from 63 to 71, which is at an intermediate level (64-79), while domestic studies have shown that SOC scores for breast cancer patients range from 51 to 56, which is at a low level (13-63)[24] . The author considers that Sweden is a developed Nordic country with a better level of national well-being and health care system than developing countries, and the overall psychological state of the nation is more positive than that of developing countries.

5. Factors influencing SOC in breast cancer patients

5.1 Demographic and sociological factors

5.1.1 Age

Hu, kejia[26] found that the older the patient the higher the SOC score, which is consistent with the findings of Mizuno[27] . This may be due to the fact that older age leads to more experience, a more mature mind and higher levels of SOC. However, Hiensch[20] showed that there was no significant correlation between SOC scores and age in breast cancer patients. The different findings in the above studies may be due to different investigation populations and research methods, and more in-depth research is needed.

5.1.2 Educational attainment

Dou Wanjun[23] showed that the higher the educational attainment, the higher the SOC score, in line with the findings of Hiensch[20] . The higher the level of education, the more comprehensive and

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objective the patient's understanding of the disease, and the less likely they are to fall into panic and despair because of a diagnosis of "cancer". During the treatment process, knowledge of the disease is more easily understood and grasped, and the perception and use of support resources is sharper and more flexible than for patients with lower literacy levels. They also have a more rational and positive attitude towards the disease and gain a greater sense of value when participating in the management of the disease. Therefore, the author believes that health care professionals should strengthen health education for patients with low literacy levels, using simple and easy-to-understand methods such as animation to deepen patients' understanding of the disease, and encourage them to communicate more with their patients or health care to obtain more effective information and rebuild their confidence in the disease, thereby improving the level of SOC.

5.1.3 Economic level

A study by Li Jing[24] found that the higher the per capita annual income level of breast cancer patients, the higher the SOC level, which is consistent with the findings of Dou Wanjun[23]. The author believes that, on the one hand, patients and their families need to bear less financial pressure when they are in a good economic situation; on the other hand, patients and family members in a good economic situation are good at communication, can dissipate patients' bad emotions in time, have active and positive thinking, have better stress capacity and can effectively use various social support resources to face stress. Patients with poor economic status may delay seeking medical treatment for financial reasons, resulting in delayed treatment and aggravation of their condition, and increased patient stress will further weaken the SOC level. Based on this, the author believes that, on the one hand, hospitals should strengthen the supervision of rational medical treatment and optimise the consultation process to avoid the waste caused by excessive medical treatment; on the other hand, health care workers should be called upon to help patients with financial difficulties in order to reduce their financial stress and improve their SOC levels.

5.2 Psychological factors

5.2.1 Self-esteem

Self-esteem is an individual's evaluation of self as valuable, worthy of respect and love, as well as the desire to be respected by society and others, and is a reflection of the individual's degree of self-acceptance[28] . Dou Wanjun[23] et al. showed that self-esteem was a positive predictor of SOC (β=0.53, $p<0.05$) in a study of elderly chemotherapy-aged breast cancer patients, in line with the findings of Liu Huan[29] . Self-esteem was a direct and indirect positive predictor of SOC with a total effect of 0.426 ($p<0.01$). One study[30] showed that breast cancer patients often perceive the altered self-image of their body after surgery as a source of difficulty in daily life, leading to fear of ridicule from other people, resulting in impaired self-esteem and a decline in acceptance of themselves. The decline in self-esteem leads to a tendency for patients to avoid problems in the face of stress, to wallow in negativity, to be reluctant to work towards combating stress, to reduce the use of support resources, thus contributing to the decline in SOC levels. Based on this, the author believes that patients should be encouraged to actively participate in disease management, complete life events independently, and be complimented and praised for their good performance to help them feel valued, friendly and caring by those around them, thus contributing to an increase in their self-esteem levels. In addition, patient acceptance and self-esteem can also be promoted through patient exchange sessions and peer support education, thus improving patients' SOC levels.

5.2.2 Optimism and Pessimism

Prieto-Callejero[31] found that higher levels of optimism were associated with higher levels of SOC in breast cancer patients (β=0.49,$P<0.05$) and higher levels of pessimism were associated with lower levels of SOC (β=-0.24,P<0.05). Some studies have shown[32] that patients with high SOC are more likely to be attracted to positive emotional stimuli in their environment and less likely to perceive stressful stimuli, and are more likely to maintain an optimistic state, while patients with low SOC appear relatively stable avoidance of positive emotions, focus more on negative information, and have difficulty de-attending to negative emotions, ultimately suffering from a pessimistic state. Long-term pessimistic states tend to make patients anxious and depressed, which affects social activities and reduces the use of support resources, thus weakening patients' SOC[33] . SOC of breast cancer patients is influenced by optimism and pessimism, and they interact with each other. Therefore, health care workers should pay attention to observe patients' emotional states, strengthen communication with pessimistic patients, instruct family members to dissipate patients' bad emotions in a timely manner,

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and encourage patients to communicate more with others improve the pessimistic state of mind, prompt them to face the disease optimistically and improve their SOC level.

5.2.3 Disease perception

Disease perception refers to the patient's interpretation of the symptoms, progression and prognosis of the disease in the present based on past experience, and has a great influence on the patient's attitude towards the disease and compliance behaviour, thus affecting the recovery process of the disease[34] . Dou Wanjun[23] found that disease perception was a negative predictor of SOC in a study of breast cancer patients (β=-0.24,P<0.05) and that the more symptoms patients felt and the more emotionally taxing they were, the lower the level of SOC. Some studies[35] have shown that patients who have more knowledge about their illness will be better able to understand it and use support resources to solve their problems. Based on this, the author believes that healthcare professionals should enhance disease knowledge, correct patients' biases in understanding disease based on experience, inform patients of the signs of change in their condition, which may increase their understanding and predictability of changes in their condition, reduce their fear of disease, increase their confidence and coping ability to face disease, and improve their SOC levels.

5.3 Physiological factors

5.3.1 With or without complications

Dou Wanjun[23] showed that breast cancer patients without complications had higher SOC levels than those with complications, in line with the findings of Zhao Haiyan[36] . The more complications a patient had, the lower the SOC level. Surgery or chemotherapy may produce one or more complications that seriously affect patients' comfort and activities, reduce patients' confidence in disease treatment and self-management, and enter a vicious cycle of disease exacerbation. At the same time, the treatment and care of complications can add to the financial burden and the stress of family companionship, and patients may experience additional psychological stress as a result, leading to a decrease in their SOC levels. Based on this, it is suggested that healthcare professionals should increase pre-surgical assessment of the condition and post-operative and post-medication observation of the condition to prevent the occurrence of complications or detect them in a timely manner and deal with them, so as to reduce the physical and psychological stress of patients and induce an increase in their SOC levels.

5.3.2 Surgical approach

Li Jing[24] showed that patients undergoing breast-conserving surgery had higher SOC scores than those undergoing mock radical and radical surgery, in line with the findings of Dou Wanjun[23] . Breast-conserving patients had higher SOC scores than those without breast-conserving surgery, with all differences being statistically significant. This may be due to the change in patient's image due to mastectomy, the change in couple intimacy, and the marital crisis, which affects the patient's SOC level. It is suggested that health care professionals should guide patients and spouses to face the change in patient's image correctly, pay attention to positive guidance to patients' spouses, and guide patients that they can change their status quo through breast reconstruction.

5.4 Social factors

The social factor affecting SOC in breast cancer patients is social support, which refers to resources from external sources, through emotional or material support with family, friends, social groups[37] . Cecon's [38] study of 2270 breast cancer patients in Germany showed that social support was a significant predictor of SOC, in line with the findings of Li Jing[24] , social support was positively associated with SOC (r=0.135, p＜0.05). SOC as a positive psychological resource and strong SOC increases patients' perception and flexible application of social support resources. Therefore, the author believes that health care workers should communicate more with patients, establish a good doctor-patient and nurse-patient relationship, instruct relatives to care more about patients and communicate more, accompany patients to participate in social activities, and help patients gradually return to society. At the same time, promote patients' perception of support resources, encourage patients to actively seek help and maximise the use of existing and potential support resources in order to enhance patients' SOC levels.

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6. Conclusion

The increasing pace of modern life and lifestyle changes, as well as the increase in risk factors such as obesity and physical inactivity, have led to an increase in the incidence of breast cancer year on year and have forced people to pay attention to it. The development of the biopsychosocial model of medicine has led to a growing interest in the impact of psychosocial factors on the development of the disease process, with SOC as a positive psychological resource that has a sustained and relatively stable positive effect on life. When faced with the disease, patients can understand that the disease occurs for a reason and is predictable, can turn stress into motivation, and can fully mobilize various social support resources to cope with the stress, which can largely maintain and promote the physical and mental health of patients. In summary, the SOC of breast cancer patients in China is at a low level, which is influenced by many factors such as demographic and sociological factors, psychological factors, physical factors and social factors. Throughout China, studies on SOC in breast cancer patients are mostly cross-sectional surveys, lacking high-quality studies with large samples and multiple centres, and few qualitative studies on SOC have been conducted. In the future, scholars can conduct high-quality cross-sectional studies and try to conduct qualitative studies to investigate the mechanism of the protective effect of SOC on patients. In addition, although some scholars[39, 40] have conducted studies on interventions based on positive stress reduction and cognitive improvement in breast cancer patients, they are all in their infancy and need to draw on foreign literature to design more rigorous, specific and actionable intervention programmes, taking into account the situation in China.

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