

Research Progress on Psychological Distress in Patients with Cervical Cancer

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Abstract: This article aims to systematically review the conceptual connotation, influencing factors, and intervention measures of psychological distress in cervical cancer patients, so as to provide a theoretical basis for developing targeted evaluation tools and optimizing nursing practice. Through the integration of domestic and foreign empirical research, three core conclusions are revealed: (1) Psychological distress is characterized by high incidence and multiple factors, and its severity is significantly positively correlated with postoperative complications (urinary retention, irreversible lymphedema) and sexual dysfunction (reduced sexual desire, vaginal dryness, etc.). Sexual functional impairment directly reduces subjective happiness, and low income and insufficient spouse support pose a key social risk; (2) Mindfulness-Based Stress Reduction, Music Therapy, and Therapeutic Communication have been proven to effectively relieve negative emotions and self-burden; (3) The current study has bottlenecks such as limitations on the universality of the scale, insufficient mechanism exploration, and fragmentation of intervention. Based on this, an innovative path is proposed: building a dynamic evaluation system integrating AI technology, exploring the gene-psychological interaction mechanism, creating a "hospital-community-family" three-level linkage model, and strengthening the communication ability of medical staff through narrative medical training, and ultimately forming a biological-psychological-social integrated intervention system to improve the quality of patients' survival.

Keywords: Cervical Cancer; Psychological Distress; Influencing Factors; Nursing Interventions; Quality of Survival

1. Introduction

Cervical cancer is a malignant tumor that occurs in the cervix. According to relevant research statistics, the ratio of mortality to incidence (MIR) of cervical cancer patients aged 20-39 is 0.31, and the proportion of cancer burden of cervical cancer accounts for a significant proportion of new cancer cases in young adults [1]. Patients with cervical cancer often bear the dual burden of changes in physical function status and psychological distress after surgery due to factors such as unknown disease prognosis, changes in physical function and image, sexual dysfunction, and potential complications. Especially in terms of sexual function, fertility and marital relationships, we face special difficulties, which makes it crucial to develop targeted assessment tools for cervical cancer patients to provide precise psychological support and nursing intervention. However, most of the existing scales are universal tools, and lack the evaluation dimensions of cervical cancer-specific problems (such as fertility anxiety, sexual health troubles, etc.), which to a certain extent affects the accurate assessment of the psychological status of this type of patients. In addition, research on nursing intervention measures is in the initial exploration stage, with a small sample size and mostly cross-sectional research, making it difficult to track long-term dynamic changes in psychological distress. This article intends to provide a theoretical basis for developing accurate assessment tools, optimizing evidence-based care plans, and improving the current situation and quality of life of patients with psychological distress by reviewing the concepts, research status, influencing factors, and intervention measures of cervical cancer patients.

2. Literature Review

2.1 Concept Definition

Psychological distress refers to the psychological discomfort and pain of an individual, which is usually manifested as anxiety, depression, fear,

or other related negative psychological states, which are closely related to disease and quality of life [2]. The most common scales that measure psychological distress include: the Kessler Psychological Distress Scale, Depression Anxiety Stress Scale-21, Hospital Anxiety and Depression Scale, Self-Rating Anxiety Scale, and Self-Rating Depression Scale. However, most of the current scales are universal scales. In the future, when developing specific psychological assessment tools for cervical cancer patients, based on the framework of the existing assessment tools, the evaluation dimension that fits local characteristics can be integrated based on the cultural background, social values, and disease cognitive systems of different countries, and the evaluation dimension of specific problems of cervical cancer can be added. (For example: anxiety related to fertility loss, body image distress, concerns about sexual life disorders, fear of cancer recurrence, perception of stigmatization of HPV infection/transmission, etc.); specific integration strategies can include: (1) Direct supplementation of new entries specifically targeting these specific dimensions based on existing scale entries (for example, new questions about "How worried are you about not having children after treatment?" or "How troubled are you about changing body image after treatment?"); (2) If the scale is in the total score form, it can give higher weight to the newly added cervical cancer-specific problems to reflect its special importance in evaluating the overall psychological distress of cervical cancer patients.

2.2 Status of Research

Huang Huiling et al.[3] investigated the anxiety and depression conditions of 143 cervical cancer patients receiving treatment in a tertiary-level A-class tumor hospital in Guangzhou City. The results of the study showed that the incidence of anxiety was 44.10% (63 cases), of which 16.08% (23 cases), 20.28% (29 cases), and 7.69% (11 cases) were in mild, moderate, and severe anxiety, respectively; the incidence of depression was 39.16% (56 cases), of which 18.18% (26 cases) were in mild, moderate, and severe depression, respectively, 11.19% (16 cases), 9.79% (14 cases), which shows that cervical cancer patients have different degrees of psychological distress, and anxiety and depression are at the mild to moderate level.

Azizi et al.[4] survey of 103 cervical cancer patients treated with CCRT in a Moroccan cancer treatment center showed that there was a high prevalence of anxiety and depression in the patients, with mild anxiety accounting for 30.1% and 54.4% for severe anxiety; 35.9% for mild depression and 51.5% for severe depression, and most of them had problems such as loss of appetite, insomnia, pain, fatigue, and nausea and vomiting, which decreased the quality of life. Lv Xianzhen et al.[5] conducted a survey and interventional study on the mental health status of 76 patients with stage I-IIa cervical cancer. The results showed that the degree of psychological distress in patients with cervical cancer at this disease stage was high. After 1 month of the trial, patients who received perioperative psychological interventions showed significant improvement in anxiety and depression, and their quality of life was significantly higher than that of the control group, indicating that psychological interventions can effectively reduce the degree of psychological distress in patients with cervical cancer and improve the quality of life of patients. The differences in these studies may be related to the inclusion of factors such as the characteristics of the study subjects, the stage of the disease, and the different measurement tools used. It is noteworthy that psychological distress, such as anxiety and depression, is prevalent in patients with cervical cancer regardless of the stage of the disease and the stage of treatment. In the current cervical cancer diagnosis and treatment, healthcare professionals focus on physical function and tumor treatment, and to a certain extent neglect its impact on patients' psychosocial aspects, and persistent psychological distress will affect the prognosis and quality of life. Therefore, it is suggested that healthcare professionals should pay attention to the assessment and screening of patients' psychological distress and early intervention.

3. Factors Affecting Psychological Distress in Patients with Cervical Cancer

3.1 Physiological Factors

3.1.1 Urinary retention and urinary risks

Treatment methods for cervical cancer include surgery, radiotherapy, and chemotherapy, where hysterectomy is the main surgical method. However, cervical cancer surgery is highly traumatic and is very likely to cause varying

degrees of damage to the patient's bladder, lymphatic vessels, ureters, and other tissues, which makes the patient's probability of postoperative complications relatively high. Urinary retention is one of the most common complications, and relevant research data show that its incidence is in the range of 1.8% to 32.4% [6]. This complication will not only affect the patient's physical recovery process after surgery, but may also increase the risk of urinary tract infection due to frequent treatment measures such as catheterization, which will aggravate the patient's psychological distress and physiological pain, and have an adverse impact on overall rehabilitation.

3.1.2 Lymphoedema in the lower limbs

Lower limb lymphedema is also one of the common postoperative complications, which are difficult to detect and irreversible in the early stage [7]. Although it does not directly endanger life, the symptoms such as swelling, pain, and restricted movement caused by lower limbs will cause inconvenience to patients' life and work. Long-term discomfort will also aggravate psychological distress, affect physical and mental health, and reduce the quality of life. In the future, nursing staff should fully consider the individual differences of patients in clinical practice, accurately standardize nursing operations, postoperative activity guidance and postoperative follow-up. At the same time, patients should be educated to pay close attention to the early signs of postoperative complications, and instruct patients to seek medical treatment immediately once they are detected to prevent irreversible damage and avoid causing or aggravating the patient's psychological distress.

3.1.3 Sexual functional injury

Sexual dysfunction in patients with cervical cancer may be caused by physical changes, psychological distress caused by surgery, and side effects caused by radiotherapy and chemotherapy. Firmeza et al. [8] found that the abnormal sexual performance of sexual function (absence of sexual desire, sexual arousal disorder, abnormal orgasm, difficulty in obtaining orgasm and vaginal dryness) in patients undergoing cervical cancer further intensified in the fourth month after surgery. Shi Yan et al. [9]'s research team developed 4 stages of positive psychological intervention led by nurses based on Martin Seligma's PERMA happiness theory model (including positive

emotion (P), engagement (E), relationships (R), meaning (M), and accomplishment (A) five core dimensions): (1) sexual psychological rehabilitation guidance, (2) sexual physiological rehabilitation guidance, (3) sexual technical guidance, and (4) comprehensive guidance. Standardized tools were used to evaluate the efficacy: female sexual function index (including 6 dimensions of sexual desire/accuracy/lubrication/orgasm/pain/satisfaction, total score of 2-36 points), self-rated depression scale (SDS-20 items, ≥ 53 define depression, graded: mild 53-62/moderate 63-72/severe ≥ 73), happiness index (8 items emotional index mean + 1 item satisfaction $\times 1.1$, total score of 2.1-14.7 points; ≥ 10.1 =high happiness). Through a randomized controlled trial of 91 patients after radical cervical cancer surgery, it was found that the intervention group was significantly better than the control group in terms of sexual function improvement, depression symptoms relief, and subjective happiness enhancement. Further analysis found that the better sexual function, the lower the level of depression, and the improvement of sexual function can promote the improvement of subjective happiness. In the future, it is recommended that medical staff strengthen their own sexual health knowledge learning, actively pay attention to the sexual health status of cervical cancer patients rather than limited to the disease itself, provide targeted psychological support for sexual health for patients and their families, and improve psychological distress caused by diseases and treatment.

3.2 Literacy Factor

Zhou Juan et al. [10] concluded that patients with lower education levels are more likely to be afraid of cancer recurrence, while patients with higher education levels can view cancer treatment and prognosis more rationally with more knowledge acquisition channels, thereby reducing anxiety. Follow-up research can expand the sample coverage and enhance sample representativeness; optimize research methods, explore multi-factor interactions, carry out longitudinal tracking research, dynamically observe changes in patients' psychological distress status, explore the long-term relationship between cultural level and cancer psychological response, and provide a basis for precise intervention.

3.3 Psychosocial Factors

3.3.1 Economic factors

Economic factors are one of the important factors affecting the psychological status of patients with cervical cancer. Patients need to bear a high financial burden during the treatment process, which may lead to anxiety in the patient. For example, Chen Jiali et al. ^[21] studied the psychological status of patients with cervical cancer chemotherapy and found that the per capita monthly income is less than 5,000 yuan, which is a high-risk factor affecting the patient's psychological status. Similarly, Li Jianxiang et al. ^[22] also pointed out that a family monthly income below 2,500 yuan is a related risk factor for depression in patients with cervical cancer. These studies show that excessive financial burden can increase psychological stress in patients with cervical cancer, which in turn can trigger anxiety. Therefore, medical institutions and society should pay attention to financial assistance to patients with financial difficulties and reduce their financial burden.

3.3.2 Spousal support factors

In the lives of patients with cervical cancer, the support of the spouse or primary caregiver is an important influencing factor. The spouse's psychological stress and social support status can significantly affect the patient's mental health and quality of life. Chang Qiying's research ^[23] shows that the stress level of spouses is negatively correlated with social support, which means that when the spouse's stress level is high, the social support they receive is relatively low, which may have a negative impact on the patient's mental health. On the other hand, Wang Lu et al. ^[24]'s research pointed out that the psychological status of patients with gynecological malignant tumors is closely related to social support, and good social support can promote patients' psychological adaptation and healthy recovery. This suggests that social support from spouses or other caregivers is critical for mental health recovery in patients with cervical cancer. Therefore, the spouse's psychological stress and social support status not only affect their own mental health, but also directly or indirectly affect the mental health and quality of life of patients with cervical cancer. In clinical care, special attention should be paid to the mental health and social support needs of the spouse or primary caregiver to promote health throughout the family and treatment outcomes of patients.

4. Intervention Measures for Psychological Distress in Patients with Cervical Cancer

4.1 Mindfulness-Based Stress Reduction

Mindfulness-Based Stress Reduction (MBSR) was proposed by Dr. Jon Kabat-Zinn in the 1970s and is a psychological intervention method centered on mindfulness meditation ^[11]. Its core concept is to help individuals perceive the present with a non-judgmental attitude through structured training, thereby alleviating stress, improving emotions and improving quality of life. Yang Yao et al. ^[12] conducted three questionnaires on the day of admission, the fourth week of intervention, and the day the intervention ended. The results showed that the experimental group adopted "routine care + mindfulness intervention", and the total score of self-feeling burden dropped from 30.89 ± 6.69 before the intervention to 21.85 ± 4.38 , a decrease of about 29.26%; the emotional dimension dropped from 12.35 ± 3.43 to 7.50 ± 1.88 , a decrease of about 39.27%. For the control group who only received routine care, the total score of self-feeling burden decreased by only about 3.15%, and the emotional dimension decreased by about 3.71%. The reduction in the two indicators in the experimental group was significantly higher than that in the control group, indicating that "routine care + mindfulness intervention" can significantly alleviate the psychological distress of patients, promote disease recovery, and improve patients' quality of life. Consistent with the research results of Ding Ying et al. ^[13]. At present, the research on Mindfulness-Based Stress Reduction (MBSR) in the field of nursing for cervical cancer patients is mainly horizontal research, and the number is relatively insufficient. Although some studies have tried to apply it in combination with other nursing intervention methods, the exploration still needs to be deepened. In the future, longitudinal research can be carried out to track the dynamic impact of this therapy on patients' psychological status, quality of life and rehabilitation process for a long time, and at the same time deepen the research methods of joint intervention to give full play to the positive role of mindful stress-reducing therapy in the treatment and rehabilitation of cervical cancer.

4.2 Music Therapy

Music therapy is an auxiliary therapy that

systematically uses music in therapeutic relationships to restore, maintain and promote emotional, physical and mental health [14]. Guo Yingjie et al. [15] focused the research on the impact of music relaxation therapy on the mental health of patients with cervical cancer chemotherapy, and included 110 patients for a 4-week intervention. Before the intervention, the negative emotions of depression (SDS) and anxiety (SAS) in the observation group were similar to those of the control group. After the intervention, the SDS score in the observation group decreased by about 27.87%, and the SAS score decreased by about 22.66%, the SDS score in the control group decreased by about 14.12%, and the SAS score decreased by about 16.23%. The observation group had significantly better results in relieving depression and anxiety than the control group, proving that music relaxation therapy can effectively alleviate negative emotions and improve the degree of psychological distress. Consistent with the research results of Li Xiaomei et al. [16], music therapy can also achieve more ideal results in long-term intervention. Another study [17] demonstrated that music therapy can effectively reduce anxiety and pain in outpatient gynecological surgery, stabilize vital signs, and improve satisfaction. Music therapy is not only economical and convenient, but also has significant value in regulating the negative emotions of cervical cancer patients in nursing practice, and patients are easily able to receive this therapy, which is worthy of widespread promotion and application in the care of female patients with malignant tumors.

4.3 Therapeutic Communication

Nurse-patient therapeutic communication is the use of communication as an intervention by clinical nurses with specialized knowledge and communication skills to target communication to patients at the right time in order to solve their main problems [18]. Sheng-Ying Chen et al. [19] included 90 patients with cervical cancer and depression in a randomized controlled trial to study the effects of a therapeutic communication system nursing intervention on depression in cervical cancer patients. Before the intervention, the difference between the SDS score and negative automatic thinking score data of the study group was not statistically significant. After the intervention, the SDS score of the study group decreased by about 27.35% and the

negative automatic thinking score decreased by about 16.24%, and both scores were significantly lower than those of the control group. In the control group, the reduction in SDS score and negative automatic thinking score was not significant. This study clearly demonstrates that the therapeutic communication system intervention can significantly reduce the SDS score and negative automatic thinking score, and improve the depression and negative thinking of patients with cervical cancer. It is consistent with the findings of Zhang Wenwu et al. [20] and that humanistic therapeutic communication can improve couple relationships and patients' sexual life. Currently, due to the heavy workload of clinical nursing, it is difficult for nurses to find enough time to communicate with patients in depth, which makes the communication only stay on the surface and cannot really touch the core needs of patients. It is recommended that clinical nursing staff receive more systematic and in-depth training in therapeutic communication to improve their communication skills and professionalism, so that they can more accurately grasp the needs of the patients and provide effective support, and carry out therapeutic communication throughout the entire process of hospitalization of the patients, from the admission to the post-discharge follow-up, to form a coherent and long-lasting mechanism of care, to improve the quality of life of the patients (including the situation of their sex life and the relationship between the husband and the wife), and to reduce the degree of their psychological distress. The quality of life of the patients (including their sexual life and couple relationship) will be improved, and their psychological distress will be reduced.

5. Conclusions and Outlook

Psychological distress in patients with cervical cancer is characterized by high incidence and multiple factors, and its severity is significantly positively correlated with postoperative complications (autumed urinary retention, lower limb lymphedema) and sexual dysfunction (absence of sexual desire, vaginal dryness, etc.). Among them, sexual function damage can directly affect subjective happiness; low- and middle- and low incomes and insufficient spouse support constitute independent risk factors. Intervention studies have confirmed that Mindfulness-Based Stress Reduction can significantly reduce self-burden in the short term,

and Music Therapy is usually accepted by patients and can well regulate patients' negative emotions and alleviate their psychological distress. Therapeutic Communication reduces negative thinking in patients, but most of the current research have four limitations: ① The existing scale lacks cultural adaptability and disease-specific dimensions (such as fertility anxiety and body image distress), and localized evaluation tools that integrate disease treatment, sexual function and social support are needed; ② The research design is mostly a small sample cross-sectional survey, which lacks tracking of long-term intervention effects, and clinical promotion challenges faces, and needs to be implemented by expanding sample size, strengthening longitudinal and multidisciplinary research; ③ In the future, it is necessary to further clarify the mechanism of psychological distress in patients with cervical cancer and explore the interaction between different influencing factors. ④ Although there are a variety of effective intervention measures, fragmentation is caused by insufficient training of medical staff, and it is necessary to systematically improve their psychological intervention capabilities and integrate evidence-based programs into routine care.

In the future, breakthroughs need to be made in four major innovation directions: First, develop digital evaluation tools, such as developing a cervical cancer-specific scale that integrates the dimensions of fertility anxiety and body image troubles, and construct a dynamic monitoring system in combination with AI emotion recognition APP; second, dig deep into the gene-psychological interaction mechanism (such as the regulation of 5-HTTLPR polymorphism on susceptibility to depression), and explore the role path of the microbiota-brain axis in psychological distress; third, build a "hospital-community-family" three-level linkage model (hospital professional intervention, community rehabilitation connection, family couple training program), and simultaneously establish an economic-psychological dual aid channel; at the same time, incorporate sexual health communication skills into the nurse certification system, improve empathy through narrative medical workshops, and ultimately realize a closed-loop support system in the "bio-psychological-social" dimension.

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