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Research Progress on Assessment Tools and Influencing Factors for Social Alienation in Lung Cancer Patients

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Abstract

This article reviews the concept, prevalence, assessment tools, and influencing factors of social alienation among lung cancer patients. It aims to help clinical healthcare professionals understand the characteristics of social alienation in this population, improve their ability to identify it early, and provide a theoretical framework for implementing interventions to address social alienation, enhance social adaptation, and improve quality of life among lung cancer patients.

Keywords

Lung Cancer, Social Alienation, Prevalence, Assessment Tools, Influencing Factors

1. Introduction

Lung cancer is a highly prevalent malignant tumor worldwide. Characterized by a prolonged course of disease, significant treatment side effects, and an uncertain prognosis, it not only causes physical suffering for patients but also frequently leads to numerous psychosocial adjustment issues [1] [2]. In 2022, China recorded 1.06 million new cases of lung cancer, accounting for 42.8% of global lung cancer incidence and 40.3% of lung cancer mortality [3]. Social alienation, a key indicator of weakened social connections, is prevalent among lung cancer patients [4]. The dangers of social alienation should not be underestimated; it not only affects patients' physical and mental health but may also lead to serious adverse behaviors such as self-harm and suicide, reduce treatment and follow-up adherence, and

even increase tumor recurrence rates and mortality, severely compromising patients' quality of life [5] [6]. This review examines the prevalence, assessment tools, and influencing factors of social alienation among patients with primary lung cancer. It aims to raise researchers' awareness of social alienation in lung cancer patients and provide a reference for healthcare professionals to develop targeted intervention strategies in the future.

2. The Concept of Social Alienation

The concept of social disengagement was first proposed by Biordi [7] to describe an individual's detachment from their existing social networks, which may be either voluntary or involuntary. This detachment leads to reduced contact with the outside world, thereby giving rise to negative emotions such as loneliness and a sense of meaninglessness. As research in this area has deepened, Nicholson *et al.* [8] proposed a broader definition of social alienation: it manifests not only as a lack of social belonging, infrequent socializing, and insufficient interpersonal interaction, but also as a lack of a sense of accomplishment and high-quality interpersonal relationships. Fine *et al.* [9] proposed that social alienation can be divided into two dimensions: social alienation and emotional alienation. The former focuses on the degree of an individual's connection to society, while the latter focuses on the individual's emotional experience.

In China, Su Shanshan *et al.* [10] applied Rodgers' conceptual analysis method to identify five conceptual attributes of social alienation in cancer patients: lack of social contacts, self-alienation, loneliness, feelings of estrangement, and a sense of meaninglessness. This definition highlights the complex impact of social alienation on the psychological and social adaptation of cancer patients. Currently, the widely accepted view regarding the concept of social alienation in China is that it refers to situations where individuals or groups experience negative treatment or poor interactions in social settings, leading to negative emotions such as loneliness and helplessness, as well as behaviors such as indifference and avoidance. It reflects both subjective feelings and a reduction in objective social interactions [4].

Currently, there is no unified standard for the concept of social alienation, and its definition has gradually expanded with advancing research. It now encompasses not only a reduction in social behavior but also places greater emphasis on individuals' emotional experiences and psychological perceptions. Therefore, understanding the multidimensional characteristics of social alienation can provide clinicians with more effective intervention strategies to help alleviate patients' social alienation.

In this paper, the concepts of social isolation, social alienation, loneliness, and social avoidance are closely related, but their core definitions differ. To avoid confusion, these concepts are distinguished as follows: Social isolation refers to an objective state in which an individual's social contact with others or society is minimal, emphasizing the actual absence of social relationships and interactions [11]. Loneliness is a subjective psychological experience, referring to the negative feel-

ings that arise when there is a discrepancy between an individual's desired level of social contact and their actual level of social contact [11]. Social avoidance is one of the primary behavioral manifestations of social anxiety, referring to an individual's tendency to actively avoid or escape social situations when opportunities for social interaction arise [12]. Social alienation, however, is a broader, multidimensional concept that encompasses not only objective aspects such as reduced social connections and avoidance behaviors but also subjective psychological experiences such as feelings of loneliness, detachment, and meaninglessness. It is the central concept of this paper, and all subsequent references to "social alienation" refer to this integrated concept.

3. Levels of Social Alienation among Lung Cancer Patients

The lung cancer patient population is large and shows a trend toward younger patients, and the issue of social alienation among lung cancer patients is gradually receiving attention. In China, Liu Yuyao *et al.* [13] used the General Sense of Alienation Scale to measure the level of social alienation among 288 lung cancer survivors who had completed anticancer treatment. The scale score was (42.66 ± 7.96), indicating that the patients' level of social alienation was moderate or higher, and that it was associated with factors such as educational attainment and perceived social support. Zheng Wei *et al.* [14] also used the General Sense of Alienation Scale to measure social alienation in 328 lung cancer patients with comorbidities, with a mean score of (36.59 ± 4.66), indicating that social alienation among these patients was at a moderate level. Foreign scholars Ashi *et al.* [15] used the Simplified Social Network Scale to assess the degree of social alienation in 264 lung cancer patients. The results showed that, compared with lung cancer patients of high socioeconomic status, those of lower socioeconomic status experienced a higher degree of social alienation. Wei *et al.* [16], however, used the Cancer Patient Social alienation Assessment Questionnaire to measure social alienation in 378 lung cancer patients undergoing chemotherapy. The results indicated that most lung cancer patients undergoing chemotherapy experienced social alienation, primarily related to symptom burden; persistent respiratory symptoms and chemotherapy side effects significantly reduced patients' willingness and ability to socialize. Among lung cancer survivors, Hu Mengdie *et al.* [17] used the General Sense of Alienation Scale for assessment. The results indicated that the degree of social alienation among lung cancer survivors was categorized as low, moderate, or high, with the majority of patients falling into the moderate-to-high range. This may be related to demographic factors such as age and educational level, as well as disease characteristics such as smoking. Furthermore, Song *et al.* [18] demonstrated through qualitative research that elderly lung cancer patients experience a marked reduction in social activities due to various discomforting symptoms, disease stigma, and insufficient social support. They often mask their condition through behaviors such as silence or avoidance, thereby exacerbating their social alienation.

In summary, most assessment tools for measuring social alienation in lung cancer patients are general-purpose scales, such as the General Social alienation Scale. The results of most studies indicate that the majority of lung cancer patients experience social alienation at a moderate level or higher, which is closely related to demographic factors, disease and treatment factors, and social factors. Therefore, it is crucial to address the issue of social alienation among lung cancer patients and develop targeted interventions to help them reduce their level of social alienation and improve their quality of life.

4. Assessment Tools for Social Alienation in Lung Cancer Patients

4.1. General Alienation Scale (GAS)

The GAS was developed for adolescents by Jessor R *et al.* [19] and adapted into Chinese by Wu Shuang *et al.* [20]. It primarily measures an individual's sense of alienation and uncertainty regarding participation in activities. The scale comprises four dimensions—self-alienation, alienation from others, suspicion, and a sense of meaninglessness—with a total of 15 items. Each item is scored on a scale from 1 to 4, ranging from "Strongly Disagree" to "Strongly Agree." with a total score ranging from 15 to 60. A higher total score indicates a higher level of social alienation. The Cronbach's α coefficient for this scale is 0.805. Currently, this scale is widely used in various populations, including those with lung cancer [13], cervical cancer [21], colorectal cancer [22], ovarian cancer [23], ostomies [24], and lymphoma [25], and has demonstrated good reliability and validity. This scale is used to measure patients' subjective levels of social alienation. Currently, no uniform clinical cutoff value has been established for lung cancer patients; in research, the total score is typically used to reflect the relative level of social alienation.

4.2. Lubben Social Network Scale-6 (LSNS-6)

This scale was adapted by Lubben *et al.* [26] and translated into Chinese by Chang *et al.* [27]. It is used to assess social networks and social support among older adults and reflects their level of social alienation. It comprises two dimensions—friends and family—with three items in each dimension, for a total of six items. A 6-point Likert scale is used to rate the number of relatives and friends with whom contact can be made, ranging from "none" to "9 or more," scored from 0 to 5, respectively. The total score ranges from 0 to 30 points; a score < 12 indicates social alienation, with lower scores indicating more severe social alienation. The scale's overall Cronbach's alpha coefficient is 0.832. Currently, in addition to measuring social alienation in the elderly, this scale is also applied to patients with lung cancer [15] and breast cancer [28] to assess their social network status, thereby indirectly reflecting their objective level of social alienation. In the elderly population, an LSNS-6 total score of <12 is generally considered indicative of social alienation. This cutoff value is similarly applied in lung cancer patients and can serve as a reference for determining clinically significant social alienation.

4.3. The Social Avoidance Scale (SAS)

This subscale is part of the Social Avoidance and Distress Scale (SADS), developed by Watson *et al.* [29] in 1969 to assess the degree of social avoidance in individuals. Localized into Chinese by Wang Xiangdong *et al.* [30], the scale consists of 14 items scored on a "yes or no" basis, with a score of 0 for "yes" and "No" scores 1 point. Among these, 7 items are reverse-scored. The scale's score range is 0 - 14 points; a higher score indicates a greater tendency to avoid and distance oneself from social situations. The scale's Cronbach's α coefficient is 0.781. This scale is used to measure patients' social avoidance behaviors, indirectly reflecting their objective level of social alienation. Currently, no clinically validated cutoff score has been established for this scale among lung cancer patients; it is primarily used to assess the degree of social avoidance behavior rather than to directly determine the presence or absence of clinically significant social alienation.

4.4. University of California, Los Angeles Loneliness Scale (UCLA Loneliness Scale)

This scale was developed by Russell *et al.* [31] in 1978 and adapted into Chinese by Wang Xiangdong *et al.* [30]; it is primarily used to measure the sense of loneliness experienced by individuals during social interactions. The scale is unidimensional and consists of 20 items, with items 1, 5, 6, 9, 10, 15, 16, 19, and 20 reverse-scored. It employs a 4-point Likert scale ranging from "Never" to "Always," scored from 1 to 4, respectively; a higher score indicates a higher level of loneliness. The scale's Cronbach's α coefficient is 0.887. Chen Zhuoyuanyuan *et al.* [32] used this scale to measure loneliness among hospitalized cancer patients, and the results indicated that these patients exhibited high levels of loneliness. This scale is used to measure patients' levels of loneliness, indirectly reflecting their subjective level of social alienation. No clinical cutoff value has been established for this scale among lung cancer patients; loneliness levels are typically reflected by the total score.

4.5. Social Alienation Assessment Questionnaire for Cancer Patients

Developed by Su Shanshan [33] in 2022 to assess the level of social alienation among cancer patients, this questionnaire comprises four dimensions—sense of alienation, loneliness, sense of meaninglessness, and self-alienation—with a total of 17 items. Scores range from 1 (Never) to 5 (Always), with items 1, 2, 3, 4, 6, and 13 being reverse-scored. The total score ranges from 17 to 85 points, with higher scores indicating more severe social alienation. The Cronbach's α coefficient for this questionnaire is 0.902. Liu Jie [34] applied this questionnaire to measure the level of social alienation in patients with mid-to-late-stage lung cancer, confirming that the questionnaire possesses good reliability and validity. This questionnaire is used to measure patients' comprehensive levels of social alienation (including both subjective and objective dimensions), providing a specific assess-

ment tool for evaluating social alienation in cancer patients. As this questionnaire was developed relatively recently, no validated clinical cutoff values have yet been established for lung cancer patients; future studies may explore the optimal cutoff values for this population.

4.6. Social Alienation Scale for Lung Cancer Survivors

This scale was developed by Zhao Wenwen [35] in 2023 for the clinical assessment of social alienation levels among lung cancer survivors. It comprises five dimensions—social connectedness, social avoidance, loneliness, alienation, and a sense of meaninglessness—with a total of 22 items, using a 5-point Likert scale. Each item is scored from 1 to 5, ranging from "Strongly Disagree" to "Strongly Agree," with items 5 and 6 reverse-scored (options A-E are scored 1 - 5, respectively). The total score ranges from 22 to 110, with higher scores indicating a greater degree of social alienation among lung cancer survivors. The scale's Cronbach's α coefficient is 0.935. However, no relevant validation studies have been identified to date. This scale is designed to measure the comprehensive level of social alienation among lung cancer patients. Developed with specificity and comprehensiveness in mind for this population, it facilitates a systematic understanding of social alienation among lung cancer patients. As a newly developed tool, clinical cutoff values have not yet been validated in independent samples, and further research is needed to establish thresholds for classifying the degree of social alienation.

5. Factors Influencing Social Alienation among Lung Cancer Patients

5.1. Demographic Factors

5.1.1. Age

Age is a significant individual factor influencing social alienation among lung cancer patients [36]. Among elderly lung cancer patients, physical decline combined with the further limitations on mobility caused by cancer leads to a gradual narrowing of their social circles. Additionally, due to insufficient understanding of the disease and poor coping abilities, elderly patients are prone to negative emotions such as fear and despair, which in turn cause them to withdraw from social interactions, resulting in a more pronounced sense of alienation [37]. Furthermore, elderly patients living alone lack daily emotional support and practical care, which not only increases the risk of social alienation but may also indirectly affect their treatment decisions and survival outcomes [38]. Among middle-aged and young patients, a study by Wu Shibao *et al.* [39] indicates that middle-aged and young lung cancer patients experience higher levels of social alienation. This differs from other studies; a possible reason is that these patients serve as the pillars of their families and the backbone of the workforce, bearing financial, child-rearing, and elder-care responsibilities. They are more sensitive to body image and social evaluation; lung cancer forces them to interrupt their work and relinquish their social roles, leading to a decline in self-worth and higher levels of social al-

ienation. Therefore, both elderly lung cancer patients living alone and middle-aged and young patients require attention. Healthcare professionals should develop individualized treatment plans based on the specific characteristics of social alienation in different patients to help alleviate their negative emotions.

5.1.2. Gender

Gender differences also play a significant role in the experience of social alienation. Studies have found that among cancer survivors, female patients report higher levels of loneliness and social alienation [40]. This disparity may stem from the influence of sociocultural gender roles; women are often assigned primary responsibility for maintaining family and social relationships, and when they are unable to fulfill these roles due to illness, they are more likely to experience a profound sense of loss and a diminished sense of self-worth. At the same time, female lung cancer patients may be more inclined to internalize their emotions when facing a health crisis rather than actively seeking external support. This may exacerbate their subjective experience of loneliness, creating a vicious cycle that further intensifies social alienation [41]. Although this study did not distinguish between subgroups, the sample consisted primarily of stage IV patients. Therefore, healthcare professionals should prioritize their emotional needs, provide greater psychological support, and encourage them to actively seek help from external resources.

5.1.3. Personality Traits

A study by Fan Na *et al.* [42] showed that among elderly lung cancer patients, those with extroverted personalities experienced lower levels of social alienation than those with introverted personalities. Among cancer patients [43], those with Type D personality may experience discomfort and anxiety during social interactions, making them prone to negative emotions. This can hinder their ability to obtain necessary support during depressive episodes, leading to increased emotional internalization and social alienation. Therefore, clinicians should pay particular attention to elderly patients with introverted personalities and Type D personality, designing personalized psychological support and social interventions to help them overcome feelings of alienation and improve their psychological resilience.

5.1.4. Level of Education

Among lung cancer survivors, those with higher levels of education tend to accept their diagnosis more quickly, demonstrate better treatment adherence, and experience lower levels of social alienation [44]. Patients with higher levels of education may find it easier to access and understand information about their disease, treatment options, and relevant support resources. This helps them manage their condition more effectively and may reduce anxiety and feelings of helplessness caused by information asymmetry, thereby lowering the risk of social alienation [13]. Furthermore, the higher a patient's educational level, the broader their social circle, the greater their access to social resources, and the stronger their social support network. Conversely, the lower the educational level, the more difficult it is

to access and understand relevant information, and the more pronounced the sense of social alienation becomes. Therefore, when communicating with patients of lower educational attainment, healthcare providers should use clear and concise language to help patients access and understand information, thereby improving treatment adherence.

5.1.5. Marital Status

A study by Zheng Wei *et al.* [14] among lung cancer patients undergoing surgical treatment and suffering from two or more chronic conditions showed that patients who were divorced or widowed were more likely to experience social alienation. Patients who are married or have a stable partner typically have a support system they can rely on, which provides emotional comfort, disease-related information, and practical assistance in daily life. Among patients with lung adenocarcinoma [45], unmarried patients exhibit higher levels of social alienation and lower cancer-specific survival rates compared to married patients. This may be due to the lack of social support associated with marital status, making patients more vulnerable to difficulties when facing the stress of the disease and adhering to treatment. Therefore, it is important to pay attention to unmarried or divorced lung cancer patients, strengthen psychological interventions, and encourage them to establish social connections.

5.2. Diseases and Treatment Factors

5.2.1. Disease-Related Factors

Among lung cancer patients undergoing chemotherapy, the various symptoms caused by the cancer itself and its treatment not only reduce patients' quality of life but also exacerbate their psychological distress [46]. This is particularly true for patients with advanced or metastatic disease, who face more severe physical symptoms such as pain, shortness of breath, and fatigue. These symptoms severely impair patients' ability to communicate in daily life, reduce their opportunities for social interaction, and lead to a gradual increase in feelings of loneliness, which further intensifies their sense of social alienation [47]. Therefore, attention should be paid to patients' physical and psychological well-being. By providing effective pain management, respiratory support, and psychological counseling, patients can be helped to cope more actively with their illness, thereby alleviating their feelings of loneliness.

5.2.2. Therapeutic Factors

Treatment modalities and their associated side effects are also significant factors contributing to social alienation among lung cancer patients [48]. For example, surgery may cause postoperative discomfort and changes in body image, which can affect patients' willingness to socialize. Patients undergoing chemotherapy often experience a range of adverse reactions, including nausea, vomiting, hair loss, and fatigue; among these, fatigue severely limits patients' ability to socialize. Furthermore, visible physical changes such as hair loss may damage patients' self-

image, triggering feelings of inferiority and shame that make them reluctant to interact with others, thereby further exacerbating social alienation [43]. Therefore, providing psychological counseling during treatment to help patients understand and gradually accept these side effects can help alleviate their sense of social alienation.

5.3. Social Factors

5.3.1. Stigmatization

Studies among patients with early-stage lung cancer have found that, in the public perception, lung cancer is typically associated with smoking; as a result, most patients with early-stage lung cancer are stigmatized as smokers, and even non-smokers are affected [49]. A diagnosis of lung cancer itself can cause a significant psychological shock for patients, often accompanied by negative emotions such as anxiety, depression, and fear. Long-term psychological distress may lead patients to withdraw from social interactions [50]. Among newly diagnosed lung cancer patients [51], the stigma associated with lung cancer is a predictor of psychological distress. Patients may worry about being discriminated against, misunderstood, or blamed by others, leading them to avoid social contact to protect themselves from negative judgments. Williamson *et al.* [52] found in a study of lung cancer patients diagnosed and treated within a 12-month period that patients commonly reported high levels of perceived stigma; this perception stemmed not only from others but was more profoundly manifested as self-doubt regarding their own worth. Therefore, it is essential to conduct public health education on lung cancer, correct public misconceptions, eliminate disease stigma, foster an inclusive and caring social environment, help patients improve their self-esteem, alleviate psychological distress, and enhance their sense of social participation.

5.3.2. Lack of Social Support

Studies have shown that social support among lung cancer patients is negatively correlated with anxiety and depression; that is, the higher the level of social support, the lower the levels of anxiety and depression [53]. Chambers *et al.* [54] found that social support is an important prognostic indicator for elderly lung cancer patients, and that low levels of social support are associated with increased cancer-related mortality. When individuals lack sufficient social support, they are more likely to experience psychological distress when coping with stress and exhibit lower treatment adherence [55]. Additionally, research has found that both the quality and quantity of social support networks play a critical role [56]. This includes social support from family, friends, and the community. Such support not only effectively alleviates the negative effects of the disease but also helps patients proactively adjust their mindset, thereby facilitating gradual recovery and reintegration into social life. Therefore, resources such as healthcare professionals, family members, and fellow patients should be fully utilized to help patients establish a stable social support network, particularly in terms of emotional and informational support.

5.3.3. Socioeconomic Status

Low socioeconomic status directly reduces the ability of newly diagnosed lung cancer patients to access social resources, such as treatment costs, transportation expenses for medical appointments, and participation in patient support groups. Some patients may forgo treatment due to high costs, leading to increased feelings of loneliness and helplessness [57]. A study by Hanafusa *et al.* [58] indicates that patients with primary lung cancer from low socioeconomic backgrounds are less likely to undergo curative surgery at an early stage, and socioeconomic disparities exist in the survival rates of those who do undergo surgery. Furthermore, low socioeconomic groups face a higher risk of lung cancer, which may be associated with higher rates of smoking and occupational exposure to carcinogens within these groups [59]. Such patients typically face significant economic and social pressures, making them prone to negative emotions such as anxiety, which can lead to social alienation. Developing targeted public health initiatives and providing effective resource assistance are crucial strategies for alleviating patients' socioeconomic pressures and mitigating feelings of social alienation.

6. Summary

Social alienation is prevalent among lung cancer patients and has a significant impact on their mental health, treatment adherence, and quality of life. Currently, there is a scarcity of research on social alienation among lung cancer patients in China, and most assessment tools rely on general-purpose scales. Although targeted assessment tools do exist, they lack validation through large-scale studies. Research on lung cancer patients remains insufficient, and there is a need to expand studies such as longitudinal cohort studies and multicenter studies. In the future, detailed clinical intervention measures could be developed by addressing demographic factors, disease and treatment factors, and social factors, to help patients alleviate feelings of social alienation and improve their overall quality of life and psychological coping abilities.

A limitation of this study is that current research is primarily cross-sectional; while such studies can identify risk factors in different clinical subgroups, they struggle to establish a direction of causality. Furthermore, existing evidence is largely concentrated in specific healthcare institutions or regions, resulting in limited sample representativeness and restricted generalizability of conclusions. At the same time, external validation of lung cancer-specific social alienation assessment tools remains insufficient, as they have not yet been replicated in multicenter studies involving diverse populations. Future research should strengthen longitudinal follow-up studies and validate the applicability of existing tools in broader settings to interpret causal relationships with greater caution.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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