

Social Integration in Patients with Haematological Malignancies: Current Status, Influencing Factors and Intervention Strategies

Ziyan Wang¹, Qing Feng², Xueting Tian¹, Wenshu Teng¹, Fang Peng^{1*}

¹Health Science Center, Yangtze University, Jingzhou, China

²Department of Hematology, Jingzhou Hospital Affiliated to Yangtze University, Jingzhou, China

Email: *489307569@qq.com

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Abstract

Social integration in patients with haematological malignancies is an important component of rehabilitation management and long-term survivorship care. This review aimed to synthesize the concept, assessment instruments, current evidence, influencing factors and intervention strategies related to social integration in this population. Relevant domestic and international literature was reviewed and summarized, with emphasis on conceptual definitions, measurement tools, research progress, associated factors and potential interventions. Social integration was identified as a dynamic and multidimensional process in which patients adapt to disease- and treatment-related changes, rebuild social connections, restore social roles and gradually reintegrate into society through productive activities, interpersonal relationships, community participation and leisure engagement. Commonly used assessment tools include the Community Integration Questionnaire, the Berkman-Syme Social Network Index, the Social Cohesion Scale and the Social Integration Scale for Cancer Patients. Existing evidence indicates that patients with haematological malignancies often experience psychological distress, heightened loneliness, occupational disruption and impaired social functioning due to the aggressive disease course, prolonged treatment trajectory and complex therapeutic regimens. Their social integration is mainly influenced by sociodemographic characteristics, disease- and treatment-related factors, psychosocial factors and healthcare-system factors. Psychoeducational interventions, peer-support programmes, digital health interventions and integrated care models may help alleviate negative emotions, enhance social support, improve self-management and promote continuity of care. Future large-scale, multicentre and longitudinal studies are needed to clarify the dynamic trajectory and underlying mechanisms of social integration, and individualized, continuous and multi-

disciplinary interventions should be developed to promote social reintegration and improve quality of life and long-term survivorship outcomes in patients with haematological malignancies.

Keywords

Haematological Malignancies, Social Integration, Influencing Factors, Social Support, Intervention Strategies, Review

1. Introduction

Haematological malignancies are a highly heterogeneous group of cancers originating from the haematopoietic organs or lymphatic system, primarily including leukaemia, lymphoma, multiple myeloma and myelodysplastic syndromes [1]. According to the Global Cancer Statistics 2020, non-Hodgkin lymphoma and leukaemia ranked eighth and ninth, respectively, in cancer incidence among men, and leukaemia was among the top ten causes of cancer-related death [2]. With advances in precision medicine, immunotherapy and multidisciplinary treatment, the survival of patients with cancer has improved substantially, and cancer is increasingly regarded as a manageable chronic condition [3]. However, owing to the aggressive nature of haematological malignancies, prolonged treatment trajectories and complex therapeutic regimens, patients often experience considerable physical and psychological burdens as well as restrictions in social functioning [4]. Evidence suggests that patients with haematological malignancies undergoing haematopoietic stem cell transplantation commonly report marked psychological distress, manifested by increased anxious rumination about cancer-related events and reduced physical functioning and perceived functional well-being [5]. In addition, this population frequently experiences symptoms of post-traumatic stress disorder, depression and anxiety, and reports significantly higher levels of loneliness than patients who have not undergone transplantation. These psychological and social challenges highlight the substantial barriers faced by patients with haematological malignancies in returning to society. Therefore, promoting social integration has become an important component of rehabilitation management for this population.

Social integration refers to the reduction or elimination of exclusion, enabling individuals to obtain an adequate standard of material living, access to social welfare and equal legal rights. It also represents a process through which individuals and society mutually adapt in terms of behavioural norms, values and psychological identification [6]. In the health-related context, social integration is considered an important indicator of psychological and social rehabilitation among patients with cancer. A higher level of social integration may not only improve quality of life but also contribute to better health outcomes. At present, studies on social integration in China have mainly focused on older adults, migrant populations and patients with chronic diseases, whereas research involving patients with

cancer, particularly those with haematological malignancies, remains limited. Given the unique disease characteristics and treatment-related challenges of haematological malignancies, patients' social integration may be influenced by demographic characteristics, disease-related factors and treatment-related experiences. Therefore, systematically reviewing the concept, assessment instruments, current evidence, influencing factors and existing interventions related to social integration in patients with haematological malignancies is of both theoretical and practical significance.

2. Concept of Social Integration

The concept of social integration was first proposed by the French sociologist Durkheim [7], with its core meaning emphasizing the degree of connection between individuals and social groups. However, no consensus has yet been reached among scholars regarding the definition of social integration in patient populations. A joint report of the European Union defined social integration as the process through which individuals become integrated into society by engaging in productive activities, social relationships, community participation and leisure activities. This process is shaped by individual, social and environmental factors, and is reflected in a range of outcome indicators [8]. In recent years, studies have shown that social integration is not only the process of integrating the floating population into the society of the destination in terms of economy, behavior, culture and psychology, but also the improvement of their acceptance by the society of the destination. It is a process of mutual adaptation between individuals and the current society in terms of behavioral norms, values and psychological identity [9]. To define the core concept of this review more clearly, it is necessary to distinguish social integration from several closely related but conceptually distinct terms. Social support mainly refers to emotional, informational, and material assistance provided by family members, friends, or healthcare institutions. It serves as an important resource and antecedent of social integration, rather than social integration itself. Social cohesion emphasizes trust, solidarity, and a sense of belonging within a group, and is generally regarded as a macro-level group characteristic, whereas social integration focuses more on the interactive process between individuals and society. Social functioning refers to an individual's ability to perform daily social roles and tasks, and represents one of the key components of social integration. Social alienation reflects a sense of disconnection, exclusion, or estrangement from society, and may be viewed as a manifestation of failed or low-level social integration. In brief, clarifying the boundaries among these concepts can help achieve a more accurate understanding of the nature of social integration among patients with hematological malignancies and prevent the interchangeable use of these terms in subsequent sections. With the deepening of research, social integration is gradually regarded as a multi-dimensional and dynamic concept covering economic integration, behavioral integration, psychological integration and other dimensions [10]. Evidence suggests that physical and

social functioning are among the most severely affected domains of health-related quality of life in patients with haematological malignancies. Negative illness perceptions, stigma and impaired emotional functioning may indirectly hinder the recovery of social functioning in this population [11]. In addition, family functioning has been shown to mediate the relationship between social support and social adjustment, whereas optimism, as a protective psychological resource, may buffer the adverse effects of disease-related stressors [12]. These findings indicate that social integration in patients with haematological malignancies involves not only individual self-adjustment, but also the combined effects of multiple psychosocial factors, including illness perceptions, stigma, family functioning and optimism.

Accordingly, in this review, social integration is defined as a process in which patients rebuild social connections through self-adjustment, restore multidimensional social functioning—including productive activities, social relationships, community participation and leisure engagement—and ultimately achieve reintegration into society.

3. Assessment Instruments for Social Integration

At present, instruments used to assess social integration in China and other countries have mostly been developed for community-dwelling populations, older adults or patients with chronic diseases. Disease-specific instruments for patients with cancer, particularly those with haematological malignancies, remain limited.

3.1. Community Integration Questionnaire

The Community Integration Questionnaire (CIQ), developed by Hrastar *et al.* [13], was designed to assess the level of community integration. It consists of 15 items across three domains: home integration, social integration and productivity, with a total score ranging from 0 to 29. Subsequently, Callaway *et al.* [14] revised the CIQ by adding an electronic social networking domain, resulting in the Community Integration Questionnaire-Revised (CIQ-R). The CIQ-R includes four domains: home integration, social integration, productivity and electronic social networking. It contains 18 items, with a total score ranging from 0 to 35. Xie *et al.* [15] validated the CIQ-R in a Chinese population and added one item related to online shopping. The scoring method was consistent with that of the original CIQ-R, with higher scores indicating better community integration. The Cronbach's α coefficient of the Chinese version was 0.84. This instrument directly measures the level of community integration and can therefore be regarded as a direct assessment tool for social integration. It has been validated among patients with spinal cord injury; however, it has not yet been validated in large samples of patients with hematological malignancies or broader cancer populations.

3.2. Berkman-Syme Social Network Index

The Berkman-Syme Social Network Index (BSSNI) is used to assess an individ-

ual's level of social integration [16]. It comprises four items: marital status, religious participation, participation in social organizations and number of friends. Each item is scored from 0 to 3, yielding a total score of 0 to 12. Scores of 0 - 5, 6 - 8 and 9 - 12 indicate low, moderate and high levels of social integration, respectively. The Cronbach's α coefficient of the scale was 0.826. This instrument focuses primarily on objective social connections, but it does not capture individuals' subjective perceptions of integration. This instrument primarily focuses on the assessment of objective social connections, but lacks measurement of individuals' subjective perceptions of integration. It has been validated among patients with chronic heart failure; however, its reliability and validity have not yet been formally examined in patients with hematological malignancies.

3.3. Social Cohesion Scale

The Social Cohesion Scale (SCS), developed by Fone *et al.* [17], was designed to evaluate the degree of social cohesion within the community context. The scale includes two dimensions, namely intimate cohesion and routine cohesion, and uses a 5-point Likert scoring system. The total score ranges from 8 to 40, with higher scores indicating a higher level of social cohesion. Han *et al.* [18] translated and culturally adapted the scale into Chinese, reporting a Cronbach's α coefficient of 0.77. This scale focuses on social integration among very old adults within community settings and covers the main attributes of social integration in older populations. However, it has not yet been validated in patients with cancer. This instrument directly measures social integration within the community context and can be classified as a direct assessment tool for social integration. The scale mainly evaluates the degree of community integration among older adults, particularly the oldest-old population. To date, it has only been validated among community-dwelling older adults and has not yet been validated in cancer populations.

3.4. Social Integration Scale for Cancer Patients

In recent years, Chinese scholars have begun to develop instruments specifically designed to assess social integration among patients with cancer. Wu *et al.* [15] developed the Social Integration Scale for Cancer Patients through literature review, semi-structured interviews, expert consultation and cognitive interviews. The scale includes three dimensions: identity adaptation, interpersonal communication and activity participation. It consists of 20 items, including 6 items for identity adaptation, 7 for interpersonal communication and 7 for activity participation. The Cronbach's α coefficient of the scale was 0.944. Owing to its rigorous development process and satisfactory reliability and validity, this scale may serve as an effective tool for assessing social integration among patients with cancer. This instrument directly measures the level of social integration among patients with cancer and is currently considered a relatively suitable assessment tool for research on social integration in patients with hematological malignancies.

4. Current Evidence on Social Integration in Patients with Haematological Malignancies

Patients with haematological malignancies often experience multiple physical, psychological and social burdens because of the aggressive nature of the disease, prolonged treatment courses and complex therapeutic regimens. A randomized trial involving patients with advanced Hodgkin lymphoma showed that shortening the treatment course from eight cycles to four cycles significantly reduced the time required for fatigue recovery among patients with negative interim assessment results, and also showed a trend toward earlier return to work [19]. Among patients undergoing hematopoietic stem cell transplantation, a mindfulness-based intervention study reported that, after the intervention, patients with haematological malignancies experienced significantly reduced levels of cancer-related anxiety, along with improvements in physical functioning and perceived functional well-being [20]. Meanwhile, loneliness was significantly higher in this population than in those who had not undergone transplantation, and the isolation ward environment during transplantation was considered an important factor contributing to loneliness. Another study of patients with lymphoma showed that only 40% of patients successfully returned to work; moreover, employed and unemployed patients differed significantly in their ability to generate appropriate solutions in social situations [21].

These findings suggest that patients with haematological malignancies commonly face barriers to social integration, including psychological distress, heightened loneliness and employment disruption. Such challenges may substantially impair their ability to return to society and rebuild social connections.

5. Factors Influencing Social Integration in Patients with Haematological Malignancies

5.1. Sociodemographic Factors

Sociodemographic characteristics have a significant impact on the level of social integration among patients with haematological malignancies. With regard to age, older patients may experience reduced social interaction because of impaired mobility and difficulties in accessing medical information. Some patients with haematological malignancies may also reduce leisure activities to lower financial expenditure, and such self-restrictive behaviours may further impede social integration [22]. Educational level is an important predictor of social integration in this population. A survey of 310 patients with haematological malignancies showed that patients with junior secondary education or below had significantly higher social alienation scores than those with a bachelor's degree or above. Financial status may also influence social integration through both direct and indirect pathways. Patients with a monthly income below 3000 yuan had the highest social alienation scores, whereas those with higher income had the lowest scores [23]. In terms of disease characteristics, a review focusing on prognostic understanding

among patients with hematological malignancies indicated that, even in relapsed or refractory settings, hematological malignancies may still remain potentially curable. However, the coexistence of hope for cure and prognostic uncertainty makes it difficult for patients to plan their social roles and life goals [24]. Marital status is another relevant factor. A systematic review including 41 studies indicated that patients with haematological malignancies who lived alone or were widowed had markedly reduced social networks because of the lack of core emotional support [20].

5.2. Disease- and Treatment-Related Factors

The unique disease characteristics and treatment regimens of haematological malignancies constitute core determinants of social integration. In terms of disease features, haematological malignancies may remain potentially curable even in relapsed or refractory settings. However, the coexistence of hope and prognostic uncertainty may make it difficult for patients to plan their social roles and life goals [25]. Treatment-related sequelae are direct barriers to social integration. A qualitative study involving 24 patients with haematological malignancies reported that patients most frequently discussed the physical impact of the disease; for example, hair loss and weight loss may lead patients to avoid social situations because of shame or embarrassment [26]. Nutritional risk and physical functional status are fundamental factors influencing social integration. A prospective study found that nutritional risk was an independent predictor of 180-day mortality, whereas individualized nutritional support significantly reduced the risk of death. Malnutrition may directly limit physical capacity and social participation among patients with haematological malignancies [27]. In addition, prolonged or repeated hospitalization may gradually disconnect patients from their original social networks [25].

5.3. Psychosocial Factors

Psychosocial factors play a critical role in the social integration of patients with haematological malignancies. Stigma is a key variable associated with social isolation. Patients with haematological malignancies may experience stigma due to deterioration in body image, and stigmatizing beliefs, such as misconceptions that haematological malignancies are contagious or that patients have diminished work capacity, may cause patients to feel discriminated against or treated differently [23]. Social support is a central factor promoting social integration. A cross-sectional study found that hopelessness was inversely associated with social support, indicating that patients with higher levels of social support experienced lower levels of hopelessness [28]. Peer support also shows potential benefits. A systematic review reported that peer support was associated with positive outcomes, including improvement in physical symptoms [29]. Notably, fear of disease progression may reduce patients' confidence in returning to work. Previous research showed that only 37.1% of patients with breast cancer returned to work

within three years after diagnosis; given the greater treatment intensity experienced by patients with haematological malignancies, their return-to-work rate may be even lower [30].

5.4. Healthcare-System Factors

Healthcare-system factors may indirectly influence the social integration process by shaping patients' treatment experiences and patient-clinician relationships. Regarding patient-clinician relationships, qualitative evidence suggests that these relationships may indirectly affect the overall social functioning of families of patients with haematological malignancies through caregivers. Trust and support from the healthcare team have also been identified as facilitators of treatment engagement [2]. In terms of palliative care, patients with haematological malignancies receive palliative care services less frequently than patients with other cancers. However, early palliative care can effectively reduce symptom burden and decrease the frequency and duration of hospitalizations, thereby creating conditions that facilitate patients' return to community life [31]. Prognostic communication is also important, as patients' understanding of prognosis is significantly associated with psychological outcomes. Both overly optimistic and overly pessimistic prognostic perceptions may affect patients' decisions regarding social participation [25]. With respect to nutritional support, individualized nutritional interventions not only reduce mortality risk but also improve functional outcomes and quality-of-life indicators in patients with cancer, providing a physical foundation for the restoration of social participation [32].

6. Interventions to Promote Social Integration in Patients with Haematological Malignancies

6.1. Cognitive Psychoeducational Interventions

Cognitive psychoeducational interventions can enhance self-management capacity and confidence in social participation among patients with haematological malignancies by providing disease-related knowledge and psychological adjustment skills. Wang *et al.* [33] conducted a randomized controlled trial among patients with haematological malignancies. After eight weeks of intervention, anxiety and depression scores in the intervention group decreased significantly and were markedly lower than those in the control group. In terms of social functioning, the intervention group also showed significantly better scores than the control group. These findings suggest that cognitive psychological intervention combined with a peer-support model can effectively alleviate negative emotions, enhance patients' confidence in coping with disease, and promote recovery of social functioning.

Regarding resilience training, Rosenbaum *et al.* [34] conducted a study of an early palliative psychosocial intervention among patients undergoing haematopoietic stem cell transplantation and found that patients from socioeconomically disadvantaged communities with higher psychological burden showed greater improvements in resilience after the intervention. This finding indicates that patients

with haematological malignancies may respond differently to psychoeducational interventions, suggesting the need to tailor intervention programmes according to individual characteristics. Nevertheless, as an integrated psychosocial strategy, the optimal timing, duration, format and content of cognitive psychoeducational interventions remain to be further explored. Future studies should focus on developing differentiated intervention programmes for patients with diverse clinical and psychosocial profiles.

6.2. Peer-Support Interventions

Peer support is a supportive care model that connects patients with similar illness experiences and has been shown to have a positive role in promoting social integration among patients with haematological malignancies [35]. Amonoo *et al.* conducted a trial among patients undergoing haematopoietic stem cell transplantation and found that in-depth discussions with peers about transplantation experiences provided patients with essential emotional and informational support [36]. In addition, peer-support models can improve social functioning by offering emotional support and experiential sharing, reducing feelings of isolation among patients with haematological malignancies and strengthening their confidence and hope for recovery [37]. As a support model centred on shared lived experiences, peer-support interventions are advantageous because they can foster emotional resonance through authentic illness narratives. They are also relatively low-cost and accessible, helping to enhance patients' sense of belonging and confidence in rehabilitation.

6.3. Digital Health Interventions

Digital health interventions based on web-based platforms have shown promising application prospects in patients with haematological malignancies. Jacobs *et al.* [38] conducted a randomized controlled trial among family caregivers of patients undergoing haematopoietic stem cell transplantation and demonstrated that a digital psychosocial intervention effectively improved caregivers' psychosocial outcomes. A systematic review of digital health interventions further reported that digital empowerment programmes had moderate positive effects on depression, psychological distress, self-efficacy and quality of life, suggesting that digital health interventions may improve psychosocial outcomes in haematological cancer care [39]. Digital health interventions allow patients to access psychosocial support at any time and from any location, making them particularly suitable for patients with haematological malignancies who experience physical weakness during treatment or live in remote areas. Moreover, the privacy of digital interventions may reduce patients' reluctance to seek help due to shame or stigma, thereby increasing their willingness to participate actively.

6.4. Integrated Care Models

Integrated care models provide seamless hospital-to-community services for pa-

tients with haematological malignancies through multidisciplinary collaboration and survivorship care planning, thereby facilitating social integration [40]. Chan *et al.* [41] proposed an integrated shared-care model involving collaboration between specialist centres and community general practitioners. This nurse-led model shared care responsibilities between haematology specialists and community general practitioners. The study aimed to provide feasibility evidence for a larger definitive clinical trial to evaluate whether shared care could improve health-related quality of life among lymphoma survivors. The core value of integrated care lies in optimizing the allocation of healthcare resources, reducing the time and financial burden associated with long-distance medical visits, and promoting comprehensive rehabilitation and social reintegration through general practitioners' attention to comorbidities and psychosocial issues [42]. This model reflects a shift from traditional disease-centred care towards a more holistic survivorship-oriented approach and may contribute to patients' comprehensive recovery and return to society.

6.5. Limitations

This narrative review did not use a systematic search strategy or quantitative meta-analysis, which may have introduced selection bias. Current evidence on social integration among patients with hematological malignancies also has several limitations.

First, disease heterogeneity remains substantial. Subtypes such as leukemia, lymphoma, and multiple myeloma differ markedly in treatment intensity, recovery trajectories, and survivorship needs; however, most studies analyze them as a single group, limiting the identification of subtype-specific issues.

Second, treatment stages are often mixed across studies. Existing research includes newly diagnosed patients, those receiving active treatment, post-transplantation patients, and long-term survivors, leaving the dynamic trajectory of social integration across disease stages unclear.

Third, intervention evidence remains limited. Most intervention studies have small sample sizes, and the generalizability and long-term effectiveness of existing strategies require further validation.

7. Conclusion

This review summarized the concept, assessment instruments, current evidence, influencing factors and intervention strategies related to social integration in patients with haematological malignancies. Although research on social integration in this population has emerged earlier in international settings, domestic studies remain largely limited to cross-sectional designs. Future large-sample, multicentre and longitudinal studies are warranted to explore the dynamic trajectory and determinants of social integration in patients with haematological malignancies. More targeted intervention strategies should also be developed to promote social integration and improve quality of life in this population.

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Conflicts of Interest

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

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