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Research Article

Psychosocial Determinants of Emotional Adjustment and Health-Related Quality of Life in Adults with Primary Brain Tumours: A Systematic Review

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Abstract

Primary brain tumours pose significant challenges due to their direct impact on neurological functioning, cognition, and emotional processes, thereby affecting patients' overall well-being and quality of life. This systematic review synthesises recent empirical evidence from 2020 to 2025 to examine the influence of psychosocial determinants coping strategies, emotion regulation, and perceived social support on emotional adjustment and health-related quality of life (HRQoL) in adults with primary brain tumours. Guided by PRISMA principles, numerous peer-reviewed studies were analysed using a narrative synthesis approach.

The findings indicate that psychological distress, particularly anxiety and depression, is highly prevalent and influenced by both neurobiological and psychosocial factors. Adaptive coping strategies, such as acceptance and cognitive reframing, were associated with improved emotional adjustment and higher HRQoL, whereas maladaptive coping strategies, including avoidance and rumination, were linked to poorer outcomes. Emotion regulation deficits, often resulting from tumour-related neurological disruption, were found to exacerbate psychological distress. In contrast, effective regulation strategies contributed to better emotional stability and resilience. Perceived social support emerged as a significant protective factor, enhancing coping capacity and mitigating distress, while also highlighting the importance of caregiver involvement in patient outcomes. Illness uncertainty was identified as a key mediating variable influencing psychological well-being.

Despite consistent findings, methodological limitations such as cross-sectional designs, small sample sizes, and heterogeneity in measurement tools restrict causal interpretation. Overall, the review underscores the importance of integrating psychosocial care into neuro-oncology practice and highlights the need for longitudinal and intervention-based research to improve patient-centred outcomes.

Keywords: *psycho-oncology, brain tumours, emotional adjustment, quality of life, coping, social support, systematic review.*

Introduction

Primary brain tumours constitute a distinct and complex category within oncology, characterised not only by their life-threatening nature but also by their profound and multifaceted impact on neurological and psychological functioning. Unlike systemic cancers, brain tumours directly affect central nervous system structures responsible for cognition, emotional processing, behaviour regulation, and personality, thereby producing a uniquely challenging clinical and psychosocial profile. Patients diagnosed with primary brain tumours frequently experience a constellation of symptoms, including cognitive impairment, executive dysfunction, mood disturbances, and behavioural changes, all of which significantly compromise their ability to adapt to illness and maintain quality of life (Samman, R. R, et al, 2024; Sperl, V. et al, 2024). These impairments are often compounded by aggressive treatment modalities such as neurosurgery, radiotherapy, and chemotherapy, which may further exacerbate neurocognitive decline and psychological distress (Horan, M. R., et al, 2023).

Within this context, health-related quality of life (HRQoL) has emerged as a critical outcome variable in neuro-oncology research and clinical practice. HRQoL extends beyond traditional biomedical indicators to encompass patients' subjective perceptions of their physical, emotional, cognitive, and social functioning. Evidence suggests that individuals with primary brain tumours report significantly lower HRQoL compared to patients with other cancer types, largely due to the direct neurological involvement of the disease and its impact on higher-order cognitive and emotional processes (Pertz, M. et al, 2022; Marzorati, C., et al, 2025). Importantly, HRQoL is not solely determined by tumour characteristics such as grade or location but is substantially influenced by psychosocial variables that shape how individuals interpret and respond to their illness experience.

Among these psychosocial determinants, coping strategies, emotion regulation processes, and perceived social support have been identified as central mechanisms underlying emotional adjustment in cancer populations. Coping strategies refer to the cognitive and behavioural efforts employed by individuals to manage the internal and external demands of stressful situations. In the context of brain tumours, adaptive coping strategies such as problem-solving, acceptance, and cognitive reframing have been associated with reduced psychological distress and improved quality of life, whereas maladaptive strategies, including avoidance and denial, are linked to poorer outcomes (Verdonck-de Leeuw, et al, 2023; Besnard, J., et al, 2024). However, the effectiveness of coping is often contingent upon cognitive capacity, which may be compromised in brain tumour patients, thereby limiting their ability to engage in adaptive coping processes.

Emotion regulation, defined as the processes through which individuals influence the experience and expression of their emotions, represents another critical determinant of psychological well-being. Brain tumours frequently disrupt neural circuits involved in emotional processing, particularly within frontal and limbic regions, leading to difficulties in emotional awareness, modulation, and control (Maschio, M., et al, 2023). Such impairments can manifest as heightened emotional reactivity, depressive symptoms, and anxiety, all of which negatively impact HRQoL. Furthermore, deficits in emotion regulation may interact with cognitive impairments, creating a bidirectional relationship that amplifies psychological vulnerability.

Perceived social support, encompassing emotional, informational, and instrumental assistance from family, friends, and healthcare providers, has consistently been identified as a protective factor in oncology settings. In brain tumour populations, strong social support networks have been associated with better emotional adjustment, enhanced coping capacity, and improved HRQoL (Zahid, N., et al, 2023; Frances, S. M., et al, 2024). Conversely, social isolation and caregiver burden can exacerbate distress and hinder adaptive functioning. Notably, the interdependence between patients and caregivers underscores the importance of adopting a dyadic perspective in psycho-oncology research, recognising that the psychological well-being of one party significantly influences the other.

A particularly salient construct within this domain is illness uncertainty, which refers to the inability to determine the meaning of illness-related events or predict future outcomes. Brain tumour patients often face high levels of uncertainty due to unpredictable disease trajectories, potential cognitive decline, and concerns regarding recurrence or progression. Empirical evidence indicates that illness uncertainty serves as a significant mediator between psychosocial factors and emotional outcomes, contributing to increased anxiety, depression, and reduced quality of life (Barton, B., et al, 2025). Addressing uncertainty through targeted interventions may therefore represent a key avenue for improving patient outcomes.

Despite the growing body of research on psychosocial functioning in oncology, studies focusing specifically on primary brain tumour populations remain relatively limited and fragmented. Existing literature often examines individual psychosocial variables in isolation, without adequately accounting for their dynamic interactions or cumulative effects on emotional adjustment and HRQoL. Moreover, methodological inconsistencies, including variability in measurement tools and study designs, have hindered the development of a coherent evidence base. There is a clear need for integrative frameworks that synthesise these variables within a comprehensive biopsychosocial model, particularly given the unique neuropsychological challenges associated with brain tumours.

In addition, much of the current research is cross-sectional in nature, limiting the ability to draw causal inferences regarding the relationships between psychosocial determinants and patient outcomes. Longitudinal studies are essential to understanding how these factors evolve over the disease trajectory and how early interventions may influence long-term adjustment. Furthermore, there is a paucity of intervention-based research targeting psychosocial mechanisms in brain tumour populations, despite evidence from broader oncology literature supporting the efficacy of psychological interventions in improving quality of life.

Given these gaps, the present systematic review aims to synthesise recent empirical evidence examining the role of key psychosocial determinants such as coping strategies, emotion regulation, and perceived social support in influencing emotional adjustment and HRQoL among adults with primary brain tumours. By critically evaluating the strength and consistency of findings across studies, this review seeks to identify core psychosocial predictors, elucidate underlying mechanisms, and highlight methodological limitations in the current literature. Ultimately, the goal is to inform the development of targeted, evidence-based psycho-oncology interventions that can enhance patient-centred care and improve overall well-being in this vulnerable population.

Methodology

The present study employed a systematic review design to synthesise contemporary empirical evidence examining the role of psychosocial determinants in emotional adjustment and health-related quality of life (HRQoL) among adults diagnosed with primary brain tumours. The review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, thereby ensuring methodological rigour, transparency, and reproducibility. Given the conceptual and methodological heterogeneity observed across the included studies, particularly with respect to research design, measurement tools, and outcome variables, a narrative synthesis approach was adopted in lieu of a quantitative meta-analysis. This approach facilitated the integration of diverse forms of evidence while preserving the contextual specificity and interpretative depth of individual studies.

The data corpus for this review consisted of a curated selection of twenty-five peer-reviewed articles provided by the author, all published within the period spanning 2020 to 2025. These studies were drawn from a range of high-impact journals within the fields of neuro-oncology, psycho-oncology, and behavioural medicine, thereby ensuring both relevance and scholarly quality. Unlike conventional systematic reviews that rely on exhaustive database searches across multiple indexing platforms, the present review was deliberately restricted to this predefined dataset in order to maintain consistency with the research objective and to focus on recent developments within the domain. This targeted approach enabled a more controlled and in-depth analysis of contemporary literature while minimising variability associated with broader search strategies.

Eligibility criteria were established a priori to guide the selection of studies and to ensure alignment with the research objectives. Studies were included if they constituted peer-reviewed empirical research, employed quantitative, qualitative, or mixed-methods designs, and focused on adult populations aged eighteen years and above diagnosed with primary brain tumours. Furthermore, eligible studies were required to examine at least one psychosocial variable of interest, including coping strategies, emotion regulation processes, perceived social support, or related constructs such as illness uncertainty, and to report outcomes pertaining to emotional adjustment or HRQoL. Emotional adjustment was operationalised through indicators such as anxiety, depression, and general psychological distress, while HRQoL encompassed multidimensional assessments of physical, emotional, cognitive, and social functioning. Studies were excluded if they focused exclusively on paediatric populations without offering transferable insights, lacked primary empirical data, or failed to assess relevant psychosocial variables. Additionally, studies examining metastatic brain tumours without clear differentiation from primary tumours were omitted to preserve conceptual clarity.

The study selection process followed a structured and sequential procedure consistent with PRISMA recommendations. Initially, all articles within the predefined dataset were screened based on their titles and abstracts to assess their relevance to the research objectives. This was followed by a comprehensive full-text review to confirm eligibility according to the established inclusion and exclusion criteria. Given that the dataset was curated in advance, all twenty-five studies met the eligibility requirements and were retained for inclusion in the final synthesis. The absence of duplicate records and the focused nature of the dataset rendered additional screening stages unnecessary, thereby streamlining the selection process.

Data extraction was conducted using a structured framework designed to ensure consistency and comparability across studies. Key information extracted from each article included study characteristics such as authorship, year of publication, geographical context, and research design, as well as sample characteristics including sample size, demographic profile, and tumour classification where available. Particular attention was given to the identification and operationalisation of psychosocial variables, including the specific constructs examined, the measurement instruments employed, and the theoretical frameworks underpinning the analyses. Outcome variables related to emotional adjustment and HRQoL were also systematically documented, along with the statistical methods used and the principal findings reported. This comprehensive extraction process facilitated a detailed and nuanced understanding of the relationships between psychosocial determinants and patient outcomes.

In order to assess the methodological quality of the included studies, a critical appraisal was undertaken using criteria adapted from established frameworks such as the Critical Appraisal Skills Programme (CASP) and the National Institutes of Health (NIH) Quality Assessment Tools. Each study was evaluated with respect to its research design, sample adequacy, validity and reliability of measurement instruments, control of confounding variables, and robustness of statistical analyses. While no studies were excluded on the basis of quality, the appraisal process enabled the identification of common methodological limitations, which were subsequently considered in the interpretation of findings. Notably, a predominance of cross-sectional designs was observed, limiting the ability to infer causal relationships between psychosocial variables and outcomes.

The synthesis of findings was conducted using a thematic narrative approach, wherein studies were grouped according to key psychosocial domains relevant to the research objectives. These domains included emotional adjustment and psychological distress, coping strategies, emotion regulation processes, social support and interpersonal dynamics, and HRQoL. Within each domain, patterns of association were examined, and the consistency of findings across studies was critically evaluated. Particular emphasis was placed on identifying mediating and moderating mechanisms, such as illness uncertainty and cognitive impairment, which may influence the relationship between psychosocial determinants and patient outcomes. Differences in findings were interpreted in light of methodological variations, including differences in sample characteristics, measurement tools, and study design.

The heterogeneity observed across studies presented a significant methodological consideration. Variability in the operationalisation of psychosocial constructs, the use of diverse assessment instruments, and differences in clinical characteristics of study populations limited the feasibility of conducting a meta-analysis. Consequently, the narrative synthesis prioritised the identification of convergent trends and overarching themes rather than the aggregation of effect sizes. This approach allowed for a more flexible and context-sensitive interpretation of the evidence, while acknowledging the limitations inherent in cross-study comparisons.

As the present study involved the analysis of previously published research, it did not require formal ethical approval. Nevertheless, all included studies were presumed to have adhered to appropriate ethical standards, including informed consent and institutional review board approval. The review itself was conducted in accordance with principles of academic integrity, ensuring accurate representation of source material and appropriate attribution of findings.

Results

Emotional Adjustment and Psychological Distress

Emotional adjustment in individuals diagnosed with primary brain tumours is characterised by a complex interplay of psychological vulnerability, neurocognitive impairment, and illness-related stressors. Across the reviewed studies, psychological distress most commonly operationalised through symptoms of anxiety, depression, and general emotional dysregulation emerged as a highly prevalent and clinically significant concern. Patients frequently report elevated levels of distress from the point of diagnosis, which often persist or intensify the disease trajectory due to the progressive and unpredictable nature of brain tumours (Cureus, 2024; Noll, K., et al, 2022). The neurological localisation of tumours further exacerbates emotional disturbances, as structural and functional disruptions in frontal and limbic regions impair the neural substrates underlying mood regulation and affective processing.

A recurring finding across studies is the central role of illness uncertainty in shaping emotional outcomes. Illness uncertainty, defined as the inability to interpret illness-related cues or predict disease progression, was consistently associated with heightened anxiety and depressive symptomatology (Caponnetto, P., et al, 2024). Patients often experience anticipatory distress related to potential cognitive decline, functional loss, and mortality, which contributes to sustained emotional burden. This uncertainty is further amplified by variability in treatment response and prognosis, particularly in high-grade tumours, thereby reinforcing maladaptive cognitive appraisals and emotional distress.

In addition to uncertainty, fear of tumour progression or recurrence has been identified as a significant psychological stressor. Empirical evidence indicates that such fears are not only prevalent but also persistent, even among patients in stable clinical conditions (Sato, et al, 2025). This suggests that emotional distress in this population is not solely contingent upon objective disease markers but is also influenced by subjective perceptions and cognitive interpretations of illness. Moreover, cognitive impairments such as deficits in attention, memory, and executive functioning further hinder patients' ability to process emotional experiences effectively, thereby complicating adaptive adjustment (Horan, M. R., et al, 2023).

Collectively, the evidence underscores that emotional adjustment in brain tumour patients is multidimensional and dynamically influenced by both neurobiological and psychosocial factors. Importantly, psychological distress is not merely a secondary consequence of physical illness but constitutes a core component of the disease experience, warranting systematic assessment and intervention within clinical practice.

Coping Strategies

Coping strategies represent a fundamental mechanism through which individuals manage the psychological demands associated with a brain tumour diagnosis. The reviewed literature consistently demonstrates that the type and flexibility of coping strategies employed significantly influence emotional adjustment and overall well-being. Adaptive coping strategies, including problem-focused coping, acceptance, cognitive restructuring, and meaning-making, were associated with lower levels of distress and improved HRQoL (Angoumis, K., et al, 2025; Pertz, M. et al, 2022). These strategies facilitate active engagement with illness-related challenges and promote psychological resilience by enabling individuals to reframe their experiences in a more manageable and constructive manner.

In contrast, maladaptive coping strategies, such as avoidance, denial, behavioural disengagement, and rumination, were consistently linked to poorer psychological outcomes. Patients who relied on avoidant coping mechanisms were more likely to experience heightened anxiety, depressive symptoms, and reduced functional capacity (Cantisano, N., et al, 2023). Such strategies may provide short-term relief from distress but ultimately impede emotional processing and adaptation, thereby contributing to long-term psychological burden.

An important nuance emerging from the literature is the concept of coping flexibility, which refers to the ability to adapt coping strategies in response to changing situational demands. Studies indicate that coping flexibility is a more robust predictor of psychological well-being than any single coping style (Noll, K., et al, 2022). In the context of brain tumours, where patients face fluctuating symptoms and uncertainties, the capacity to shift between problem-focused and emotion-focused coping appears particularly beneficial. However, cognitive impairments associated with brain tumours may limit this flexibility, thereby constraining patients' ability to employ adaptive coping strategies effectively.

Furthermore, coping strategies are influenced by a range of individual and contextual factors, including personality traits, cognitive capacity, social support, and disease severity. This highlights the need for personalised psychosocial interventions that account for these variables and aim to enhance adaptive coping while reducing reliance on maladaptive patterns.

Emotion Regulation Processes

Emotion regulation processes play a critical role in determining how individuals experience, interpret, and respond to emotional stimuli. In patients with primary brain tumours, these processes are often compromised due to direct neurological disruption as well as the psychological burden of illness. The reviewed studies provide substantial evidence that deficits in emotion regulation are closely associated with increased psychological distress and diminished HRQoL (Maschio, M., et al, 2023; Chieffo, D. P. R., et al, 2023).

Difficulties in emotion regulation manifest in various forms, including impaired emotional awareness, reduced capacity for cognitive reappraisal, and heightened emotional reactivity. These impairments are particularly pronounced in patients with tumours affecting frontal brain regions, which are critical for executive control and emotional modulation. As a result, patients may struggle to regulate negative emotions effectively, leading to persistent states of anxiety, irritability, or depression.

The interaction between cognitive impairment and emotion regulation represents a key mechanism underlying psychological vulnerability in this population. Executive dysfunction, commonly observed in brain tumour patients, limits the ability to engage in higher-order regulatory strategies such as reappraisal or problem-solving. This creates a feedback loop in which emotional distress exacerbates cognitive difficulties, which in turn further impair emotional regulation (Horan, M. R., et al, 2023). Such bidirectional interactions underscore the complexity of psychosocial functioning in neuro-oncology.

Emerging evidence also highlights the role of specific emotion regulation strategies in shaping outcomes. For instance, cognitive reappraisal has been associated with reduced distress and improved psychological adjustment, whereas expressive suppression is linked to poorer outcomes. However, the effectiveness of these strategies is contingent upon the individual's cognitive capacity and contextual factors, suggesting that interventions targeting emotion regulation must be tailored to the unique neuropsychological profile of each patient.

Social Support and Interpersonal Factors

Perceived social support constitutes one of the most consistently identified protective factors in the psychosocial adjustment of brain tumour patients. The literature indicates that individuals who report higher levels of emotional, informational, and instrumental support from family members, friends, and healthcare providers exhibit better emotional adjustment and higher HRQoL (Zahid, N, et al, 2024; Marzorati, C., et al, 2025). Social support not only provides practical assistance but also facilitates emotional validation, reduces feelings of isolation, and enhances coping capacity.

The role of caregivers is particularly salient in this context, as brain tumour patients often rely heavily on informal caregiving due to cognitive and functional impairments. Studies adopting a dyadic perspective highlight the interdependence between patient and caregiver well-being, demonstrating that caregiver distress can significantly influence patient outcomes (Stockdill, M. L., et al, 2024). High levels of caregiver burden, emotional exhaustion, and psychological distress are associated with poorer patient adjustment, suggesting that psychosocial interventions should extend beyond the individual patient to include caregiver support.

Conversely, the absence or inadequacy of social support has been linked to increased psychological distress and reduced quality of life. Social isolation, diminished social participation, and perceived lack of understanding from others can exacerbate feelings of helplessness and anxiety (Siegwart, V., et al, 2022). This is particularly relevant for patients experiencing cognitive or behavioural changes, which may strain interpersonal relationships and reduce social engagement.

Healthcare provider support also plays a critical role, particularly in terms of communication, information provision, and emotional reassurance. Patients who perceive their healthcare providers as supportive and responsive are more likely to report lower levels of distress and greater satisfaction with care. This underscores the importance of patient-centred communication and multidisciplinary care approaches in neuro-oncology settings.

Health-Related Quality of Life (HRQoL)

Health-related quality of life represents a multidimensional construct that encompasses physical, psychological, cognitive, and social domains of functioning. In individuals with primary brain tumours, HRQoL is significantly compromised due to the combined effects of neurological impairment, treatment-related side effects, and psychosocial stressors. The reviewed studies consistently demonstrate that HRQoL is not solely determined by clinical variables such as tumour grade or treatment modality but is strongly influenced by psychosocial determinants (Pertz, M. et al, 2022; McDowell, L., et al, 2022).

Physical symptoms, including fatigue, pain, and neurological deficits, contribute substantially to reduced functioning; however, psychological factors such as anxiety, depression, and coping capacity often account for a significant proportion of variance in HRQoL outcomes. Cognitive impairments, particularly in domains such as memory and executive functioning, further diminish patients' ability to engage in daily activities and maintain independence (Oprandi, M. C., et al, 2022).

Importantly, psychosocial variables such as adaptive coping, effective emotion regulation, and strong social support networks have been shown to mitigate the negative impact of physical and cognitive impairments on HRQoL. Patients who employ adaptive coping strategies and report higher levels of social support tend to exhibit better overall functioning and life satisfaction, even in the presence of significant clinical burden.

Emerging research also highlights the potential for psychosocial interventions to improve HRQoL outcomes. Interventions targeting coping skills, emotional resilience, and social support enhancement have demonstrated promising results in reducing distress and improving overall well-being (Van Dyk, K., et al, 2022). However, the evidence base remains limited, particularly with respect to longitudinal and randomised controlled studies.

In sum, HRQoL in brain tumour patients is shaped by a dynamic interaction between biomedical and psychosocial factors. A comprehensive understanding of these interactions is essential for developing holistic, patient-centred care models that address not only the physical but also the psychological and social dimensions of illness.

Discussion

The present systematic review sought to synthesise recent empirical evidence on the psychosocial determinants of emotional adjustment and health-related quality of life (HRQoL) in adults with primary brain tumours. The findings provide convergent support for the central premise that psychosocial factors specifically coping strategies, emotion regulation processes, and perceived social support play a critical and multifaceted role in shaping patient outcomes. Importantly, these determinants do not operate in isolation but interact dynamically with neurobiological and clinical variables, reinforcing the relevance of a comprehensive biopsychosocial framework in understanding adjustment in neuro-oncology populations.

One of the most salient findings across the reviewed literature is the pervasive nature of psychological distress in individuals with primary brain tumours. Elevated levels of anxiety, depression, and emotional dysregulation were consistently reported, underscoring that emotional distress is not merely a secondary consequence of physical illness but a core component of the disease experience. This aligns with broader psycho-oncology literature, yet the intensity and complexity of distress appear particularly pronounced in brain tumour populations due to the direct involvement of neural systems responsible for emotional and cognitive functioning. The disruption of frontal and limbic structures compromises patients' capacity for emotional regulation and cognitive appraisal, thereby amplifying vulnerability to distress. Consequently, emotional adjustment in this context must be conceptualised as both a psychological and neurobiological process, shaped by the interaction between brain pathology and psychosocial mechanisms.

Illness uncertainty emerged as a particularly influential construct, functioning as a key mediator between psychosocial variables and emotional outcomes. Patients with brain tumours frequently confront an unpredictable illness trajectory, characterised by uncertain prognosis, potential cognitive decline, and risk of recurrence or progression. This uncertainty contributes to persistent anticipatory anxiety and maladaptive cognitive appraisals, which in turn exacerbate emotional distress. The findings suggest that interventions targeting uncertainty management such as psychoeducation, cognitive restructuring, and meaning-making approaches may be especially beneficial in improving psychological outcomes. Furthermore, the prominence of fear of progression highlights the need to address not only present distress but also future-oriented concerns that significantly impact patients' emotional well-being.

Coping strategies were identified as one of the most robust predictors of emotional adjustment and HRQoL. The distinction between adaptive and maladaptive coping was consistently supported across studies, with adaptive strategies such as acceptance, problem-solving, and cognitive reframing associated with improved outcomes, and maladaptive strategies such as avoidance and rumination linked to increased distress. However, a more nuanced understanding emerges when considering the role of coping flexibility. The ability to dynamically adjust coping strategies in response to changing circumstances appears to be particularly critical in the context of brain tumours, where patients face fluctuating symptoms and evolving challenges. This finding extends traditional coping models by emphasising adaptability rather than static coping styles as a key determinant of resilience.

At the same time, the effectiveness of coping strategies must be understood in relation to the cognitive limitations imposed by brain tumours. Executive dysfunction, attentional deficits, and memory impairments may constrain patients' ability to engage in complex coping processes, thereby limiting the utility of certain adaptive strategies. This highlights an important clinical implication: psychosocial interventions must be tailored to the neurocognitive capacities of patients, rather than assuming intact cognitive functioning. Interventions that rely heavily on cognitive restructuring, for instance, may require modification or supplementation with more behavioural or supportive approaches in individuals with significant cognitive impairment.

Emotion regulation processes further contribute to the observed variability in psychological outcomes. The review indicates that deficits in emotion regulation—particularly difficulties in emotional awareness, modulation, and expression—are strongly associated with increased distress and reduced HRQoL. These deficits are likely attributable to both neurobiological disruption and psychological burden, creating a bidirectional relationship in which emotional distress and cognitive impairment mutually reinforce one another. The identification of specific emotion regulation strategies, such as cognitive reappraisal and expressive suppression, provides valuable insight into potential intervention targets. Enhancing patients' capacity for adaptive regulation while reducing reliance on maladaptive strategies may represent a promising avenue for improving emotional adjustment.

Perceived social support emerged as a consistently protective factor, mitigating the impact of psychological distress and enhancing HRQoL. The findings underscore the importance of both structural and functional aspects of support, including the availability of supportive relationships and the perceived quality of interpersonal interactions. In the context of brain tumours, where patients may experience cognitive and behavioural changes that affect social functioning, the role of caregivers becomes particularly critical. The dyadic nature of patient-caregiver relationships highlights the need for interventions that address both parties, recognising that caregiver distress can significantly influence patient outcomes. This perspective aligns with emerging models in psycho-oncology that emphasise relational and systemic approaches to care.

The interplay between psychosocial determinants and HRQoL represents a central theme of the review. While physical symptoms and treatment-related side effects undoubtedly contribute to reduced quality of life, the evidence indicates that psychosocial variables account for a substantial proportion of variance in HRQoL outcomes. These finding challenges traditional biomedical models that prioritise clinical indicators and underscores the necessity of incorporating psychosocial assessment and intervention into routine care. Patients who demonstrate adaptive coping, effective emotion regulation, and strong social support networks consistently report better quality of life, even in the presence of significant clinical burden. This suggests that psychosocial resilience may buffer the impact of disease-related factors, thereby enhancing overall well-being.

Despite these important insights, the review also highlights several limitations within the existing literature. The predominance of cross-sectional study designs limits the ability to establish causal relationships between psychosocial determinants and outcomes. Longitudinal research is needed to elucidate how these variables evolve over time and to identify critical periods for intervention. Additionally, heterogeneity in measurement tools and outcome definitions complicates cross-study comparisons and limits the generalisability of findings. The reliance on self-report measures may also introduce bias, particularly in populations with cognitive impairment. Future research would benefit from the integration of objective neuropsychological assessments and multimodal measurement approaches.

Another notable gap in the literature is the relative paucity of intervention-based studies targeting psychosocial mechanisms in brain tumour populations. While the broader oncology literature provides evidence for the efficacy of psychosocial interventions, there is a need for tailored interventions that account for the unique neurocognitive and emotional challenges associated with brain tumours. Randomised controlled trials evaluating the effectiveness of such interventions would provide critical evidence for informing clinical practice.

From a clinical perspective, the findings of this review underscore the importance of adopting a holistic, patient-centred approach to care in neuro-oncology. Routine screening for psychological distress, coping difficulties, and social support deficits should be integrated into standard clinical protocols. Multidisciplinary care teams, including psychologists, neuropsychologists, social workers, and medical professionals, are essential for addressing the complex needs of this population. Furthermore, interventions should be individualised, taking into account patients' cognitive capacities, personal preferences, and social contexts.

In conclusion, the present review advances the understanding of psychosocial determinants in primary brain tumour populations by highlighting the interconnected roles of coping strategies, emotion regulation, and social support in shaping emotional adjustment and HRQoL. These findings reinforce the necessity of integrating psychosocial care into neuro-oncology practice and provide a foundation for the development of targeted, evidence-based interventions. Moving forward, greater emphasis on longitudinal research, methodological standardisation, and intervention development will be critical for enhancing the quality of life and overall well-being of individuals living with primary brain tumours.

Clinical Implications

The findings of this review have several important implications for clinical practice within neuro-oncology and psycho-oncology settings. Foremost, the consistent association between psychosocial determinants and both emotional adjustment and HRQoL underscores the necessity of integrating psychological care into standard oncological treatment pathways. Emotional distress should not be viewed as a peripheral concern but rather as a central component of patient care that warrants systematic assessment and intervention.

Routine screening for psychological distress, coping difficulties, and social support deficits should be implemented as part of comprehensive clinical evaluations. Standardised screening tools can facilitate early identification of patients at risk for poor adjustment, enabling timely referral to mental health professionals. Given the high prevalence of anxiety, depression, and illness uncertainty, early intervention may prevent the escalation of distress and improve overall outcomes.

The role of coping strategies in shaping patient outcomes suggests that interventions aimed at enhancing adaptive coping and reducing maladaptive patterns may be particularly beneficial. Cognitive-behavioural approaches, acceptance-based therapies, and psychoeducational interventions can equip patients with practical skills to manage stress and navigate the challenges associated with their diagnosis. However, such interventions must be adapted to account for the neurocognitive limitations commonly observed in brain tumour patients. Simplified, structured, and repetitive formats may be necessary to ensure accessibility and effectiveness.

Emotion regulation represents another critical target for clinical intervention. Training patients in adaptive emotion regulation strategies, such as cognitive reappraisal and mindfulness-based techniques, may help mitigate psychological distress and improve emotional stability. Given the neurobiological underpinnings of emotion regulation deficits in this population, interventions may need to incorporate both psychological and neurorehabilitative components.

The importance of social support highlights the need for a systemic approach to care that extends beyond the individual patient. Involving family members and caregivers in the therapeutic process can enhance treatment outcomes and address the dyadic nature of psychological functioning. Caregiver support programmes, counselling services, and psychoeducation can help reduce caregiver burden and indirectly improve patient well-being. Additionally, fostering effective communication between patients and healthcare providers is essential for building trust, reducing uncertainty, and enhancing patient satisfaction.

Multidisciplinary care models are particularly well-suited to addressing the complex needs of brain tumour patients. Collaboration among oncologists, neurologists, psychologists, neuropsychologists, social workers, and rehabilitation specialists can უზრუნველ a holistic approach that integrates medical and psychosocial care. Such models are likely to improve not only psychological outcomes but also treatment adherence and overall quality of life.

Conclusion

The present systematic review provides a comprehensive synthesis of recent empirical evidence examining the psychosocial determinants of emotional adjustment and health-related quality of life (HRQoL) in adults with primary brain tumours. The findings consistently demonstrate that psychosocial factors particularly coping strategies, emotion regulation processes, and perceived social support play a central and clinically significant role in shaping patient outcomes. These determinants operate within a complex and dynamic biopsychosocial framework, wherein neurobiological disruptions, cognitive impairments, and psychological processes interact to influence both emotional well-being and overall quality of life.

Coping strategies were identified as one of the most influential determinants of adjustment, with adaptive and flexible coping associated with improved emotional outcomes and enhanced HRQoL, and maladaptive coping linked to increased distress and functional impairment. Similarly, effective emotion regulation emerged as a key protective factor, although its role is complicated by the neurocognitive disruptions inherent in brain tumour pathology. Perceived social support, particularly from caregivers and healthcare providers, further contributes to resilience by facilitating emotional processing, reducing isolation, and enhancing adaptive coping capacity. The interdependence between patients and caregivers underscores the importance of adopting a relational perspective in both research and clinical practice.

The current review also highlights that psychosocial determinants play a critical role in shaping emotional adjustment and HRQoL in adults with primary brain tumours. Adaptive coping, effective emotion regulation, and strong social support systems significantly enhance patient outcomes, while maladaptive processes exacerbate distress. Integrating psychosocial interventions into standard oncological care is essential for improving overall well-being and quality of life in this population.

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