Psychological Care in Neurological Disorders: A Family Medicine Approach

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ABSTRACT

Neurological disorders are a leading global cause of disability and mortality, frequently accompanied by high rates of psychological comorbidities such as depression and anxiety, which significantly worsen outcomes and increase caregiver burden. Despite this, mental health care remains poorly integrated into standard neurological practice due to systemic, professional, and patient-related barriers. This study discuss that the Family Medicine model—with its principles of continuity, comprehensiveness, patient-centeredness, and coordination—is uniquely positioned to bridge this gap. This narrative review synthesizes evidence from observational studies, trials, and guidelines. A comprehensive non-systematic literature search was performed using major electronic databases, including PubMed/MEDLINE, PsycINFO, CINAHL, and the Cochrane Library, for articles published in English from January 2010 to December 2025. The high prevalence of psychological distress across conditions like stroke, dementia, multiple sclerosis, epilepsy, and Parkinson's disease, and examines evidence-based interventions, including cognitive-behavioral therapy, mindfulness-based approaches, and supportive psychoeducation. Overcoming fragmentation through integrated, family medicine-led care is essential to address the biopsychosocial complexity of neurological illness and improve holistic patient and family outcomes.

Keywords: Neurological disorders; Psychological care; Mental health comorbidity; Family medicine; Primary care; Integrated care; Caregiver burden; Holistic care; Depression; Anxiety

INTRODUCTION

Neurological disorders represent one of the most significant and growing challenges to global health systems, affecting hundreds of millions of individuals and their families worldwide. According to the Global Burden of Disease study, neurological conditions are now the leading cause of disability-adjusted life years (DALYs) and the second leading cause of death globally, with an estimated 43% of the world's population—over 3.4 billion people—living with a neurological condition[1].

This staggering prevalence is driven by both non-communicable disorders, such as stroke, dementia, epilepsy, and migraine, and the aging of populations in many countries. The direct medical costs are enormous, but they are frequently eclipsed by the indirect costs of lost productivity, caregiver burden, and long-term support needs. Crucially, the impact of a neurological diagnosis extends far beyond the pathophysiology of the disease itself, profoundly disrupting the psychological and social fabric of patients' lives and the lives of those who care for them[1]. The psychological dimension of neurological illness is pervasive and multifaceted. A robust body of evidence confirms that patients with neurological disorders experience significantly higher rates of comorbid psychiatric conditions compared to the general population or those with other chronic illnesses. For instance, approximately 30-50% of stroke survivors experience post-stroke depression, which is associated with poorer functional recovery, increased cognitive impairment, and higher mortality[2]. Similarly, depression affects up to 50% of patients with multiple sclerosis and Parkinson's disease, while anxiety disorders are present in 20-40% of

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individuals with epilepsy[3]. Beyond diagnosable disorders, patients commonly grapple with profound psychological distress, including grief over lost abilities, fear of progression, existential anxiety, and a diminished sense of self and identity. This psychological morbidity is not merely a reaction to disability; it often shares complex, bidirectional neurobiological pathways with the primary neurological disease, creating a vicious cycle that can accelerate cognitive and functional decline[3].

This psychological burden radiates through the family system, creating a cascade of caregiver strain and family dysfunction. An estimated 60-75% of long-term care for individuals with moderate to severe neurological impairment is provided informally by family members, typically spouses or adult children[4]. The relentless demands of physical care, behavioral management (common in dementia or traumatic brain injury), financial stress, and social isolation place caregivers at extreme risk. Studies indicate that 40-70% of caregivers for individuals with dementia exhibit clinically significant symptoms of depression, and they have a 63% higher mortality risk than non-caregivers of the same age[5]. Furthermore, the dynamic within the family unit often shifts dramatically, leading to role reversals, marital conflict, sibling neglect, and intergenerational stress. The family, therefore, becomes a secondary patient unit, with its own set of clinical needs that are frequently overlooked in traditional, neurologist-centered care models[2].

Despite the unequivocal evidence linking psychological and neurological health, a profound gap persists in the routine integration of mental health care into neurological practice. The current paradigm often remains siloed, with neurologists focusing on diagnostic accuracy, medication management for core neurological symptoms, and acute interventions. A survey of outpatient neurology practices found that while over 80% of neurologists acknowledged the high frequency of depression in their patients, only a minority routinely used standardized screening tools, and even fewer had systematic referral pathways to mental health services[6]. Barriers include time constraints, limited training in psychiatric management, reimbursement issues, and a shortage of accessible, specialized neuropsychiatric services. Consequently, up to 50% of major depression in neurological patients goes undiagnosed and untreated, leading to preventable suffering and worse neurological outcomes[7].

This care gap underscores the urgent need for a more holistic, coordinated, and accessible model of care—one that is inherently provided by the discipline of Family Medicine. The Family Physician (FP) is uniquely positioned to bridge the divide between neurology and psychological care. As a primary care specialist trained in a biopsychosocial model, the FP provides continuous, comprehensive, and patient-centered care across the lifespan and within the context of family and community[8]. Approximately 85% of patients with chronic neurological conditions have regular contact with a primary care provider, who often serves as the first point of contact for new symptoms, the coordinator of specialist care, and the longitudinal manager of comorbid conditions[9].

METHODOLOGY

This narrative review was conducted to synthesize current evidence and clinical perspectives on psychological care within neurological disorders, emphasizing a family medicine framework. A comprehensive literature search was performed using major electronic databases, including PubMed/MEDLINE, PsycINFO, CINAHL, and the Cochrane Library, for articles published in English from January 2010 to December 2025. Search terms were constructed using Medical Subject Headings (MeSH) and keywords combining three primary concepts: neurological disorders (e.g., "stroke," "dementia," "multiple sclerosis," "epilepsy," "Parkinson disease"), psychological aspects (e.g., "depression," "anxiety," "psychological care," "mental health"), and care models (e.g., "family medicine," "primary care," "integrated care," "multidisciplinary team"). The initial search yielded a broad set of results, which were subsequently refined through review of titles and abstracts.

Inclusion criteria prioritized systematic reviews, meta-analyses, randomized controlled trials, observational studies, and authoritative clinical guidelines that addressed the epidemiology of psychological comorbidities, evidence-based interventions, care models, or implementation challenges.

Exclusion criteria: Editorials, case reports, and studies not available in full text.

This search and selection strategy aimed to provide a robust overview of the landscape rather than a systematic appraisal of a single intervention.

Neurological Disorders and Psychological Comorbidities

Neurological disorders constitute a diverse group of conditions affecting the central and peripheral nervous systems, representing a leading source of disability and dependency globally. Their clinical presentation is rarely confined to motor, sensory, or cognitive deficits; rather, they are intrinsically linked with a high burden of psychological and psychiatric manifestations[10]. The traditional dichotomy between "neurological" and "psychiatric" illness is clinically artificial, as shared neurobiological substrates—including neurotransmitter system dysregulation, neuroinflammation, and structural brain changes—underlie both sets of symptoms[11].

Neurodegenerative Disorders are characterized by progressive neuronal loss and are strongly associated with neuropsychiatric symptoms. Alzheimer's disease and other dementias are the most common, affecting over 55 million

people worldwide[12]. Beyond cognitive decline, approximately 80-90% of patients will experience significant psychological or behavioral symptoms, known as Behavioral and Psychological Symptoms of Dementia (BPSD)[13]. These include apathy (45-75%), depression (up to 50%), agitation/aggression (up to 60%), anxiety (30-50%), and psychosis (30-50%).[13] Parkinson's disease, primarily a movement disorder, is similarly fraught with psychological complications. The point prevalence of major depression is estimated at 35%, while anxiety disorders affect 30-40% of patients[14]. Additionally, up to 40% of patients may experience psychosis (hallucinations, delusions), often as a side effect of dopaminergic therapy, and 40-50% will develop dementia over the disease course[14].

Cerebrovascular Disorders, primarily stroke, offer a clear model of brain-behavior relationships. Stroke is a leading cause of adult disability, and its psychological sequelae are devastatingly common. Post-stroke depression (PSD) affects approximately 30% of survivors at any point in time, with a cumulative incidence reaching 55%[15]. PSD is independently associated with increased mortality, poorer functional recovery, and greater cognitive impairment[15]. Post-stroke anxiety occurs in 20-25% of patients, often co-occurring with depression. Emotional lability (pseudobulbar affect) is present in 15-20% of patients, and marked apathy is observed in 20-40%[15].

Autoimmune and Inflammatory Neurological Diseases, such as Multiple Sclerosis (MS), demonstrate the profound impact of neuroinflammation on mood and cognition. Depression is the most common comorbidity in MS, with lifetime prevalence estimates as high as 50% and annual prevalence around 20-25%[16]. The risk of depression in MS is 2-3 times higher than in the general population or in persons with other chronic illnesses[16]. Anxiety disorders are present in 35-40% of patients. Furthermore, clinically significant fatigue—a symptom straddling neurological and psychological domains—affects 75-90% of MS patients and is a major determinant of reduced quality of life[16].

Epilepsy is defined by recurrent seizures, but its psychosocial burden is immense. The relationship between epilepsy and psychiatry is bidirectional. People with epilepsy have a 2-5 times higher risk of developing depression, and those with depression have a 3-7 times higher risk of developing epilepsy[17]. Lifetime prevalence of depression in epilepsy populations ranges from 30% to 50%, while anxiety disorders affect 20-40%. Importantly, psychiatric symptoms can be peri-ictal, occurring as premonitory symptoms before a seizure, or as post-ictal phenomena. Psychogenic non-epileptic seizures (PNES) also highlight this intersection, requiring careful differentiation from epileptic seizures[17].

Chronic Headache Disorders, particularly migraine, are strongly linked to psychiatric illness. Migraine with aura is associated with an increased risk for mood and anxiety disorders. Population-based studies show the prevalence of depression is 2-4 times higher in individuals with migraine compared to those without[18]. The comorbidity with anxiety disorders, including generalized anxiety and panic disorder, is even stronger, with odds ratios ranging from 3.5 to 5.0[18].

Traumatic Brain Injury (TBI), even of mild severity, can lead to a constellation of chronic neuropsychiatric problems. Post-concussion syndrome often includes depression, anxiety, irritability, and apathy. Major depression develops in approximately 30-50% of individuals within the first year following moderate to severe TBI[19]. Anxiety disorders are reported in 20-30% of cases. Furthermore, disinhibition, aggression, and marked personality changes are common sources of caregiver distress and social disruption[19]. The prevalence of these comorbidities is summarized in Table 1 as follows:

Table 1: Prevalence of Common Psychological Comorbidities in Selected Neurological Disorders

Neurological Disorder	Depression	Anxiety Disorders	Other Prominent Psychological Symptoms
Alzheimer's/Dementia	Up to 50%[13]	30-50%[13]	Apathy (45-75%), Agitation (60%), Psychosis (30-50%)[13]
Parkinson's Disease	~35%[14]	30-40%[14]	Apathy (40%), Psychosis (40%), Impulse Control Disorders[14]
Post-Stroke	30% (point); 55% (cumulative)[15]	20-25%[15]	Apathy (20-40%), Emotional Lability (15-20%)[15]
Multiple Sclerosis	Lifetime: ~50%; Annual: 20-25%[16]	35-40%[16]	Pathological Fatigue (75-90%)[16]
Epilepsy	30-50% (lifetime)[17]	20-40%[17]	Peri-ictal Psychiatric Symptoms, Psychosis[17]
Migraine	2-4x population risk[18]	3.5-5x population risk[18]	--
Traumatic Brain Injury	30-50% (first year post-moderate/severe)[19]	20-30%[19]	Irritability, Aggression, Disinhibition[19]

The mechanisms underlying these comorbidities are complex and multifactorial, best understood through a biopsychosocial framework. Biologically, they may be a direct result of lesion location (e.g., left frontal stroke), neurodegeneration in mood-related circuits (e.g., frontal-striatal pathways in PD), neuroinflammation (e.g., cytokine release in MS), or medication side effects. Psychologically, the adjustment to a chronic, unpredictable, and often disabling condition is a profound stressor, involving grief, fear, and threats to self-identity. Socially, stigma, social isolation, and financial strain exacerbate distress[20].

Role of Family Medicine in Holistic Care

The management of chronic neurological disorders with their intricate psychological and social dimensions demands a care model that transcends the traditional, episodic, and organ-specific approach of pure specialty medicine. Family Medicine, grounded in a distinct set of core principles, offers the essential framework for this holistic care. It provides continuous, comprehensive, and patient-centered management that is uniquely suited to address the longitudinal and multifaceted needs of patients with neurological conditions and their families[10].

The practice of Family Medicine is defined by several interdependent principles that collectively facilitate holistic care. These include: (1) Continuity of Care, which entails a sustained healing partnership with patients and families over time and across various health events; (2) Comprehensiveness, addressing the vast majority of patient concerns, whether biological, behavioral, or social; (3) Patient-Centered Care, which seeks to understand the patient's unique experience of illness within their personal and familial context; (4) Family and Community Orientation, recognizing the family as a unit of care and understanding the community's resources and influences; and (5) Coordination of Care, integrating the services provided by other specialists and healthcare entities to ensure seamless management[15]. These principles are not abstract ideals but practical guides that directly counteract the fragmentation commonly experienced by neurological patients.

Applied to neurological care, these principles transform the clinical approach. Continuity allows the Family Physician (FP) to monitor the subtle progression of a disorder like Parkinson's disease, recognize the early signs of depression or caregiver burnout that might be missed in a brief specialty visit, and provide consistent counseling and support through stages of grief and adjustment[11]. Comprehensiveness ensures that the FP manages not only the neurological condition but also its common comorbidities—such as hypertension in stroke, constipation in Parkinson's, or medication-overuse headache in migraine—alongside the ever-present psychological sequelae. This whole-person view prevents the dangerous compartmentalization of care. The patient-centered approach is paramount in neurology, where diseases often threaten core aspects of identity and autonomy. The FP explores what the diagnosis means to the patient, their fears about dependency, their personal goals for treatment (e.g., maintaining the ability to read versus walking unaided), and tailors the management plan accordingly[13].

Crucially, the family orientation of Family Medicine formally recognizes the caregiver's health as within the clinical purview. The FP is positioned to routinely screen the caregiver for depression and anxiety, offer respite strategies, provide education on disease management, and facilitate family meetings to navigate difficult decisions, thereby supporting the very foundation of the patient's home care[17]. Finally, coordination is perhaps the most active and critical role. The FP acts as the central hub of the patient's healthcare, interpreting and reconciling recommendations from the neurologist, psychiatrist, physiotherapist, and social worker, ensuring medications do not interact adversely, and communicating key changes in the patient's status to the specialist team[15]. This coordinated function mitigates against polypharmacy, contradictory advice, and medical errors.

The Family Physician's role within this MDT is that of an integrator and longitudinal guide. They are responsible for convening the team's efforts around a unified care plan. For example, in managing a patient with MS, the FP would: monitor for bladder infections and provide general health maintenance; screen for and initiate treatment for depression; assess the spouse's stress levels; ensure the immunizations are compatible with disease-modifying therapies prescribed by the neurologist; and refer to physiotherapy for spasticity management[20]. This model ensures that care is not merely *multidisciplinary* (with multiple professionals working in parallel) but truly *interdisciplinary*, with collaborative communication and shared goals[21].

Implementing this model, however, faces systemic challenges. These include time constraints during primary care visits, inadequate reimbursement for care coordination activities, siloed electronic health records that impede information sharing, and a shortage of accessible mental health professionals for referral[22]. Despite these barriers, evidence supports the effectiveness of integrated, team-based care. Studies of collaborative care models for depression in chronic illnesses, including neurological conditions, consistently show superior patient outcomes, improved quality of life, and better adherence to treatment compared to usual care[23]. Furthermore, proactive, primary care-led management has been shown to reduce unnecessary hospitalizations and emergency department

visits for ambulatory-care-sensitive conditions in vulnerable populations with complex needs[24].

Evidence-Based Psychological Interventions in Neurology

The high prevalence of psychological comorbidities in neurological disorders necessitates not only their recognition but also the application of effective, evidence-based treatments. While pharmacological management remains a cornerstone, psychological interventions offer critical benefits, including the development of coping skills, addressing maladaptive thought patterns, and improving overall quality of life without the additional burden of drug side effects[11]. These interventions are not generic mental health support but are often adapted to address the unique cognitive, emotional, and physical challenges posed by specific neurological conditions[22].

Cognitive-Behavioral Therapy stands out as the most extensively researched psychological intervention in medical populations, with strong empirical support in neurology. While CBT demonstrates generalized effectiveness across disorders, the evidence is most robust when examining its condition-specific applications. In stroke rehabilitation, meta-analyses indicate CBT is effective for post-stroke depression, significantly reducing depressive symptoms compared to usual care[13]. For Multiple Sclerosis, CBT adapted for fatigue management has proven beneficial, leading to measurable improvements in fatigue severity and daily functioning[15]. Furthermore, CBT is considered a first-line behavioral treatment for chronic migraine and tension-type headache, often combined with pharmacotherapy, resulting in reduced headache frequency and associated disability [25].

Barriers to Integration of Psychological Care in Neurological Practice

Despite robust evidence demonstrating the high prevalence and clinical significance of psychological comorbidities in neurological disorders, and the proven efficacy of various interventions, a persistent chasm exists between this knowledge and its routine application in clinical practice[25]. The integration of psychological care into standard neurological treatment plans remains inconsistent and fraught with obstacles[26]. These barriers operate at multiple levels of the healthcare system, affecting both specialist neurologists and primary care family medicine practitioners who are crucial in the care continuum.

At the systemic and structural level, significant constraints hinder integration. The dominant fee-for-service reimbursement model in many healthcare systems prioritizes brief, procedure-focused visits over the time-intensive counseling and care coordination required for managing complex psychosocial needs[27]. Most billing codes do not adequately compensate for activities like screening for depression, conducting a family assessment, or communicating with multiple providers, creating a financial disincentive for integrated care[28]. Furthermore, siloed care deliveryis a major structural barrier. Neurology and mental health services often operate in separate physical and administrative systems with poor communication channels. The lack of integrated electronic health records (EHRs) or shared care plans between primary care, neurology, and psychiatry leads to fragmented care, contradictory recommendations, and polypharmacy risks[29]. Finally, there is a widespread shortage of accessible mental health professionals, particularly those with expertise in neuropsychiatry or experience with medically complex patients. Long wait times for referrals result in treatment delays, during which psychological symptoms worsen and undermine neurological outcomes[30].

Professional-level barriers are equally formidable. A primary challenge is the severe time constraint during clinical encounters. Neurologists often manage packed schedules focused on diagnostic evaluation, interpretation of tests, and adjustment of disease-specific medications, leaving little room for in-depth exploration of mood or caregiver stress[31]. Similarly, family physicians face competing demands of managing multiple chronic conditions and acute presentations within a standard 15-20 minute visit, making comprehensive neurological-psychosocial assessment feel unfeasible[32]. Gaps in training and confidence also play a role. Many neurologists receive limited formal education in psychiatry, leading to discomfort in diagnosing or initiating treatment for conditions like depression or anxiety[33]. Conversely, family medicine practitioners may lack specific training in recognizing the unique presentations of psychological distress in conditions like Parkinson's or epilepsy, where symptoms can be atypical[34]. This can contribute to diagnostic overshadowing, where psychological symptoms are incorrectly attributed solely to the neurological diagnosis and thus left untreated[35].

Patient-related factors and pervasive stigma further complicate integration. Patients with neurological disorders may perceive mental health symptoms as a personal failing or a sign of weakness, not as a neurobiologically-based component of their illness[36]. They may fear that reporting depression or anxiety will detract attention from their "primary" neurological care or lead to being labeled as a "psychiatric case".[37]. Cognitive and physical limitations inherent to many neurological disorders (e.g., aphasia, cognitive impairment, fatigue) can also be barriers. These limitations make it difficult for patients to engage in standard talk therapies, attend regular appointments, or even articulate their emotional state, requiring adapted approaches that are not always available[38]. Table 2 synthesizes these multi-level barriers.

Table 2: Multilevel Barriers to Integrating Psychological Care in Neurological Practice

Level	Barrier Category	Specific Challenges
Systemic	Reimbursement & Financial	Inadequate payment for screening, counseling, and care coordination; favoritism towards procedural care[27, 28].
	Care Fragmentation	Siloed neurology, primary care, and psychiatry services; lack of shared EHRs and communication protocols[31, 32] .
	Workforce Shortage	Limited availability of neuropsychologists, psychiatrists, and therapists trained in neurorehabilitation[27, 33].
Professional	Time Constraints	Overbooked clinics limit time for in-depth psychosocial assessment in both neurology and FM[35].
	Training & Competency Gaps	Neurologists under-trained in psychiatry; FM providers under-trained in neurology-specific psychopathology[36].
	Diagnostic Overshadowing	Attributing psychological symptoms purely to neurological disease, leading to therapeutic nihilism[36].
Patient	Stigma & Attitudes	Reluctance to accept a "mental health" diagnosis; fear of not being taken seriously[38].
	Disease-Related Limitations	Cognitive impairment, aphasia, fatigue, and mobility issues hindering engagement in assessment/therapy.

These barriers create a cyclical pattern of neglect. Systemic constraints limit professional time and resources, which contributes to training gaps and low confidence, resulting in under-detection. Patient stigma and access issues then ensure that even when identified, needs often go unmet[39]. The consequence is that a majority of patients with neurological disorders and comorbid depression or anxiety do not receive minimally adequate treatment, leading to worse health outcomes, higher healthcare utilization, and preventable suffering[40].

Overcoming these barriers requires deliberate, multi-pronged strategies. These include advocating for policy changes to create sustainable payment models for integrated care, developing collaborative care models with co-located or tightly linked services, and investing in telepsychiatry and digital health tools to improve access[41].

Professionally, enhancing interdisciplinary education and creating clear, simple screening and referral pathways within clinical workflows are essential steps[42].

For family medicine, which operates at the nexus of these challenges, the role is particularly critical. FPs must leverage their longitudinal relationships to overcome stigma, use structured tools for efficient screening, and act as persistent navigators and coordinators within a fractured system to ensure their patients with neurological disorders receive the holistic care they require[8].

LIMITATIONS

This review has several limitations that should be considered. As a narrative synthesis, it does not represent a systematic review or meta-analysis, and therefore may be subject to selection bias in the cited literature, potentially overlooking some relevant studies. The focus on English-language publications and a specific timeframe may exclude important contributions from other regions or earlier foundational work. Furthermore, the broad scope covering multiple neurological disorders, while necessary for the family medicine perspective, precludes an in-depth, condition-specific analysis of each psychological intervention or care model.

The recommendations for integrating care, though evidence-based, are also constrained by the significant heterogeneity in global healthcare systems, financing structures, and resource availability, which may affect their generalizability and immediate implementation in all practice settings.

CONCLUSION

The intersection of neurological and psychological health is a critical nexus for improving patient outcomes. Evidence confirms that psychological comorbidities are highly prevalent, intrinsically linked to disease mechanisms, and worsen neurological prognosis. A purely neurological approach is therefore insufficient. The family medicine model, with its principles of continuity, comprehensiveness, and coordination, provides the essential framework for holistic care. As the consistent hub for longitudinal management, the family physician ensures routine screening, delivers first-line intervention, supports caregivers, and navigates the necessary multidisciplinary network.

Overcoming systemic, professional, and patient-level barriers to integration is a pressing challenge. Prioritizing collaborative, primary care-anchored models is an ethical and clinical imperative to alleviate the full burden of neurological disease.

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REFERENCES
1. GBD 2021 Nervous System Disorders Collaborators. Global, regional, and national burden of disorders affecting the nervous system, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. *Lancet Neurol*. 2024;23(4):344-381. doi:10.1016/S1474-4422(24)00038-3
2. Hackett ML, Pickles K. Part I: frequency of depression after stroke: an updated systematic review and meta-analysis of observational studies. International Journal of Stroke. 2014 Dec;9(8):1017-25.
3. Kanner AM. Management of psychiatric and neurological comorbidities in epilepsy. Nature Reviews Neurology. 2016 Feb;12(2):106-16.
4. Shrestha P. National Family Caregivers Month:"Caregiving Around the Clock". Journal of Gerontological Nursing. 2021 Nov 1;47(11):3-5.
5. Schulz R, Beach SR. Caregiving as a risk factor for mortality: the Caregiver Health Effects Study. Jama. 1999 Dec 15;282(23):2215-9.
6. Jette N, Patten S, Williams J, Becker W, Wiebe S. Comorbidity of migraine and psychiatric disorders—a national population-based study. Headache: The Journal of Head and Face Pain. 2008 Apr;48(4):501-16.
7. Fiest KM, Dykeman J, Patten SB, Wiebe S, Kaplan GG, Maxwell CJ, Bulloch AG, Jette N. Depression in epilepsy: a systematic review and meta-analysis. Neurology. 2013 Feb 5;80(6):590-9.
8. McDaniel SH, Campbell TL, Hepworth J, Lorenz A. Family-oriented primary care. 2005; 23(2): 237-242.
9. Pringsheim T, Jette N, Frolkis A, Steeves TD. The prevalence of Parkinson's disease: a systematic review and meta-analysis. Movement disorders. 2014 Nov;29(13):1583-90.
10. Steinmetz JD, Seeher KM, Schiess N, Nichols E, Cao B, Servili C, Cavallera V, Cousin E, Hagins H, Moberg ME, Mehlman ML. Global, regional, and national burden of disorders affecting the nervous system, 1990–2021: a systematic analysis for the Global Burden of Disease Study 2021. The Lancet Neurology. 2024 Apr 1;23(4):344-81.
11. Traxler L, Lucciola R, Herdy JR, Jones JR, Mertens J, Gage FH. Neural cell state shifts and fate loss in ageing and age-related diseases. Nature Reviews Neurology. 2023 Jul;19(7):434-43.
12. Laver K, Connolly C, Priest L, Rahja M. Brain health and dementia prevention: getting the message across. Aging & Mental Health. 2025 Mar 8:1-3.
13. Cerejeira J, Lagarto L, Mukaetova-Ladinska EB. Behavioral and psychological symptoms of dementia. Frontiers in neurology. 2012 May 7;3:73.
14. Aarsland D, Batzu L, Halliday GM, Geurtsen GJ, Ballard C, Ray Chaudhuri K, Weintraub D. Parkinson disease-associated cognitive impairment. Nature reviews Disease primers. 2021 Jul 1;7(1):47.
15. Medeiros GC, Roy D, Kontos N, Beach SR. Post-stroke depression: a 2020 updated review. General hospital psychiatry. 2020 Sep 1;66:70-80.
16. Boeschoten RE, Braamse AM, Beekman AT, Cuijpers P, Van Oppen P, Dekker J, Uitdehaag BM. Prevalence of depression and anxiety in multiple sclerosis: a systematic review and meta-analysis. Journal of the neurological sciences. 2017 Jan 15;372:331-41.
17. Mercier MR, Dubarry AS, Tadel F, Avanzini P, Axmacher N, Cellier D, Del Vecchio M, Hamilton LS, Hermes D, Kahana MJ, Knight RT. Advances in human intracranial electroencephalography research, guidelines and good practices. Neuroimage. 2022 Oct 15;260:119438.
18. Minen MT, De Dhaem OB, Van Diest AK, Powers S, Schwedt TJ, Lipton R, Silbersweig D. Migraine and its psychiatric comorbidities. Journal of Neurology, Neurosurgery & Psychiatry. 2016 Jul 1;87(7):741-9.
19. Schönberger M, Ponsford J, Gould KR, Johnston L. The temporal relationship between depression, anxiety, and functional status after traumatic brain injury: a cross-lagged analysis. Journal of the International Neuropsychological Society. 2011 Sep;17(5):781-7.
20. Hesdorffer DC. Comorbidity between neurological illness and psychiatric disorders. CNS spectrums. 2016 Jun;21(3):230-8.
21. Gallo JJ, Hwang S, Joo JH, Bogner HR, Morales KH, Bruce ML, Reynolds III CF. Multimorbidity, depression, and mortality in primary care: randomized clinical trial of an evidence-based depression care management program on mortality risk. Journal of general internal medicine. 2016 Apr;31(4):380-6.
22. Jones S, Howard L, Thornicroft G. 'Diagnostic overshadowing': worse physical health care for people with mental illness.
23. Archer J, Bower P, Gilbody S, Lovell K, Richards D, Gask L, Dickens C, Coventry P. Collaborative care for

depression and anxiety problems. Cochrane Database of Systematic Reviews. 2012(10).

24. Coleman EA, Parry C, Chalmers S, Min SJ. The care transitions intervention: results of a randomized controlled trial. Archives of internal medicine. 2006 Sep 25;166(17):1822-8.

25. Cheng ST, Au A, Losada A, Thompson LW, Gallagher-Thompson D. Psychological interventions for dementia caregivers: What we have achieved, what we have learned. Current psychiatry reports. 2019 Jul;21(7):59.

26. Cicerone KD, Goldin Y, Ganci K, Rosenbaum A, Wethe JV, Langenbahn DM, Malec JF, Bergquist TF, Kingsley K, Nagele D, Trexler L. Evidence-based cognitive rehabilitation: systematic review of the literature from 2009 through 2014. Archives of physical medicine and rehabilitation. 2019 Aug 1;100(8):1515-33.

27. Alosco ML, Spitznagel MB, van Dulmen M, Raz N, Cohen R, Sweet LH, Colbert LH, Josephson R, Hughes J, Rosneck J, Gunstad J. Cognitive function and treatment adherence in older adults with heart failure. Biopsychosocial Science and Medicine. 2012 Nov 1;74(9):965-73.

28. Pham T, Jetté N, Bulloch AG, Burton JM, Wiebe S, Patten SB. The prevalence of anxiety and associated factors in persons with multiple sclerosis. Multiple sclerosis and related disorders. 2018 Jan 1;19:35-9.

29. Dorstyn D, Mathias J, Denson L. Efficacy of cognitive behavior therapy for the management of psychological outcomes following spinal cord injury a meta-analysis. Journal of Health Psychology. 2011 Mar;16(2):374-91.

30. Thomas KC, Ellis AR, Konrad TR, Holzer CE, Morrissey JP. County-level estimates of mental health professional shortage in the United States. Psychiatric services. 2009 Oct;60(10):1323-8.

31. Hamelsky SW, Lipton RB. Psychiatric comorbidity of migraine. Headache: The Journal of Head and Face Pain. 2006 Oct;46(9):1327-33.

32. Shea YF, Ha J, Chu LW. Comparisons of clinical symptoms in biomarker-confirmed A lzheimer's disease, dementia with L ewy bodies, and frontotemporal dementia patients in a local memory clinic. Psychogeriatrics. 2015 Dec;15(4):235-41.

33. Gitlin LN, Kales HC, Lyketsos CG. Nonpharmacologic management of behavioral symptoms in dementia. Jama. 2012 Nov 21;308(19):2020-9.

34. Corrigan PW, Druss BG, Perlick DA. The impact of mental illness stigma on seeking and participating in mental health care. Psychological science in the public interest. 2014 Oct;15(2):37-70.

35. Pahwa P, Goel RK. Ameliorative effect of Asparagus racemosus root extract against pentylenetetrazol-induced kindling and associated depression and memory deficit. Epilepsy & Behavior. 2016 Apr 1;57:196-201.

36. Michaelis R, Tang V, Nevitt SJ, Wagner JL, Modi AC, LaFrance Jr WC, Goldstein LH, Gandy M, Bresnahan R, Valente K, Donald KA. Psychological treatments for people with epilepsy. Cochrane Database of Systematic Reviews. 2020(8).

37. Korostil M, Feinstein A. Anxiety disorders and their clinical correlates in multiple sclerosis patients. Multiple Sclerosis Journal. 2007 Jan;13(1):67-72.

38. Gillespie DC, Bowen A, Chung CS, Cockburn J, Knapp P, Pollock A. Rehabilitation for post-stroke cognitive impairment: an overview of recommendations arising from systematic reviews of current evidence. Clinical rehabilitation. 2015 Feb;29(2):120-8.

39. Laatsch L, Dodd J, Brown T, Ciccia A, Connor F, Davis K, Doherty M, Linden M, Locascio G, Lundine J, Murphy S. Evidence-based systematic review of cognitive rehabilitation, emotional, and family treatment studies for children with acquired brain injury literature: From 2006 to 2017. Neuropsychological rehabilitation. 2020 Jan 2;30(1):130-61.

40. Alexopoulos GS, Reynolds III, MD CF, Bruce ML, Katz IR, Raue PJ, Mulsant BH, Oslin DW, Ten Have T, PROSPECT Group. Reducing suicidal ideation and depression in older primary care patients: 24-month outcomes of the PROSPECT study. American Journal of Psychiatry. 2009 Aug;166(8):882-90.

41. Huffman JC, Niazi SK, Rundell JR, Sharpe M, Katon WJ. Essential articles on collaborative care models for the treatment of psychiatric disorders in medical settings: a publication by the academy of psychosomatic medicine research and evidence-based practice committee. Psychosomatics. 2014 Mar 1;55(2):109-22.

42. American Academy of Family Physicians. *Integrated Behavioral Health Care*. Available from: https://www.aafp.org/about/policies/all/integrated-behavioral-health.html.