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RESEARCH ARTICLE

BEYOND LESIONS: EXPLORING THE PSYCHOLOGICAL DIMENSIONS OF MULTIPLE SCLEROSIS

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Abstract

Multiple Sclerosis (MS) is a chronic, neurological condition that affects individuals within the age group of 20-40 years. Patients with MS experience a wide range of symptoms including physical and psychological. The common psychiatric conditions in MS are depression, anxiety, bipolar disorder and psychosis. The existing literature focuses on depression and its prevalence quite extensively. While the current management of MS focuses on relieving the visible symptoms, the psychological symptoms aren't taken into account during treatment. Multiple studies have shown that ignorance of the psychological symptoms of MS can lead to exacerbation of symptoms of MS. Invisible symptoms of MS like fatigue, insomnia, pain and depression can be effectively managed by psychotherapy. Cognitive Behavior Therapy is useful in managing fatigue, insomnia, pain and depression in the MS population. Other psychotherapies like Acceptance and Commitment Therapy and Mindfulness-based approaches are useful in the MS population too. The purpose of this paper is to explore the existing literature on the prevalence of psychiatric conditions in MS and various psychotherapies that can be used in the management of MS.

Introduction:-

Multiple Sclerosis (MS) is a chronic, neurological condition that affects individuals within the age group of 20-40 years of age (1). It is neurodegenerative and progressive in nature resulting in increased disability over time in patients(2). It is the most common non-traumatic disabling disease that affects young adults(3). Patients with MS experience a wide range of symptoms that are evident on the outside like difficulty in walking and balancing. While many symptoms, deemed as "invisible", are internal and difficult to see from the outside. They include pain, fatigue, mood and mental health disorders, cognitive changes, bowel and bladder dysfunction, sexual dysfunctions, and vision changes(2). The most prominent mental health symptom is depression which manifests as irritability, discouragement, memory and concentration problems, fatigue, insomnia, and poor appetite. The prevalence of depression is approximately 25-50%(4). In a study done in India, approximately 60% of individuals with MS presented with depression(5). MS also affects the cognitive functioning of individuals with MS. Approximately 50% of individuals with MS present with some type of cognitive deficit in the course of their illness. Commonly affected abilities include information processing, visuospatial abilities, conceptual reasoning, sustained attention, working memory, and retrieval functions in short-term and long-term memory(4). While causes for physical symptoms can

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be attributed to lesions in the brain, their location and number; mental health issues too can be attributed to the same along with psychosocial factors like difficulty accepting the diagnosis, loss of employment, change in family dynamics, etc. Even though psychological symptoms and their treatment are often overlooked in the management of MS, it is imperative to discuss the various psychiatric syndromes presented in MS. Studies indicate that mental health issues can exacerbate the symptoms of MS and lead to disability(6). Psychosocial factors like interpersonal conflict, loss of loved ones, lack of social support, anxiety and depression are identified as risk factors that aggravate MS symptoms. Stress plays a key role in relapses in MS, though the relationship between MS and stress can be complex with characteristics of the stress source and personality playing an intermediary role(7). Additionally, due to the unpredictable nature of MS, living with uncertainty is a daily experience. The inability of MS patients to tolerate uncertainty contributes to mental health problems in MS(8). In this paper, we aim to explore the psychological issues experienced by individuals with MS and how they can be managed.

Psychiatric Disorders in MS:

Depression

Multiple studies have continually shown a higher prevalence of depression among MS persons when compared to the general population. For example, in a study conducted in Iran, in a sample of 87 MS patients, around 47% were found to have depression(9). In another study conducted in India, with a sample of 90 patients, approximately 39% had depressive symptoms(5). In a study done by Boeschoten in 2017, the depression rates were found to be 17% and the annual ratio of prevalence was found to be 1.77(10). MS persons are, thus, predisposed to depression with the rates being as high as 50% which surpasses the point prevalence of the general population by 9.3-23.7 %(11). The manifestation of depression in MS can range from mild to severe(2). Both biological and psychological causes have been implicated in the causation of depression in MS. Biologically, the severity and lesion burden are lined with depression(12). Psychologically, depression is associated with the changes that occur due to MS in a person's life and the unpredictable nature of the disease rather than lesion load. There is, however, some difference in the presentation of depression and type of MS with relapse-remitting having a higher prevalence(12). Additionally, psychosocial factors like young age, lower education level, shorter disease duration and perceived social support contribute to an increased risk of depression. These, in turn, can lead to poor management of MS, increased use of medical services and decreased quality of life among MS individuals (13)(14).Two studies that explored suicidal intent and ideation in MS found that 8.5% of the total sample of 188 and 10.8% of a sample of 445 had thoughts of self-harm and suicide respectively(15). Even though, as much as there is a risk of 50% for developing depression post the diagnosis of MS, it is often underdiagnosed. Of the many reasons could be the overlapping symptoms of MS and depression which include fatigue, impaired concentration, decreased appetite, sleep disturbances and memory deficits. Also, classic symptoms of depression like isolation, guilt feelings, and decreased self-esteem aren't usually reported in MS individuals(12).

Anxiety

Similar to depression, the rate of anxiety in the Multiple Sclerosis (MS) population is strikingly higher compared to the general population. Research indicates that approximately 34% of individuals with MS present with clinically significant anxiety symptoms which is nearly threefold to that observed in the general population(16). Within anxiety disorders, generalised anxiety disorder is found in approximately 19%, panic disorder in 10%, obsessive-compulsive disorder in 9%, and social anxiety disorder in 8%(12). An Australian longitudinal study showed a prevalence of 40% among MS patients(10). Furthermore, a cross-sectional study conducted at the MS outpatient clinic of the University of Calgary found that approximately 30% of participants screened positive for anxiety using the Hospital Anxiety and Depression Scale (HADS), underlining the burden of anxiety among those affected with MS(10). Furthermore, a systematic review by Marrie and colleagues done in 2015, revealed that a higher average point prevalence of anxiety existed at 21.9% in the MS population(16). Also, in a study conducted by Boeschoten et al. in 2017, around 36% of MS patients showed clinically significant anxiety. The link between anxiety and depression within the context of MS is complex and multifactorial. Anxiety happens to be a strong predictor of depression, influencing it both, directly and indirectly. Interestingly, anxiety can trigger depression and exacerbate symptoms of fatigue, thereby increasing depressive symptoms (17)(16). Some studies suggest an interdependence between depression and anxiety while others propose that nonsomatic symptoms of depression like excessive worry, fear of losing control, inability to relax and employment status serve as risk factors for increased levels of anxiety symptoms in MS(11). Furthermore, empirical evidence also suggests that depression and anxiety can coexist(10). Both together can lead to other mental health problems, in turn, increasing the risk of exacerbating MS symptoms. Anxiety can impact social functioning and interpersonal relationships(12). Despite the severe impact of anxiety on daily functioning in individuals with MS, it often remains under-recognized and receives almost no attention from

clinicians involved in the management of MS. This may stem from the overlapping clinical presentations of anxiety with somatic and non-somatic symptoms of MS, eventually leading to non-treatment of the same(12). Only around 11% of individuals with MS get treated for anxiety (18). Untreated anxiety can lead to several consequences, including lowered quality of life, decreased treatment adherence, and exacerbation of MS symptoms. Hence, identifying the factors associated with clinically significant anxiety, which can be disabling, is of utmost importance(16).

Bipolar

The prevalence of Bipolar among individuals with MS exceeds as twice that observed in the general population with reported rates ranging from 0.3% to 2.4%. However, some studies have reported substantially higher rates up to 10%. Although there is variability in findings as evident across countries, a large cross-sectional survey spanning 11 countries identified an overall lifetime prevalence of bipolar spectrum disorder at 2.4% in the general population. Interestingly, Carta and colleagues in 2013 reported an odds ratio of 44.4 for experiencing bipolar disorder along with MS, while Marrie et al. in 2015 documented a lifetime prevalence of up to 16.2% in MS patients(11). A meta-analysis showed an estimate of the crude prevalence of Biploar in MS of 2.95%, with marked heterogeneity observed across studies. Subgroup analysis revealed a higher prevalence of Biploar II compared with Biploar I in the MS population(19). Moreover, a Canadian study reported higher incidence and prevalence estimates of bipolar disorder in MS populations compared to matched non-MS populations, with a modest but significant increase in the hazard ratio for bipolar disorder following hospital admission for MS(20). However, this hazard ratio diminished when assessing the period more than a year post-hospital admission for MS. Despite the possibility of the occurrence of Bipolar in MS, there is a lack of substantial research on prevalence, incidence and epidemiology(20). There is a major dearth of research which establishes this possibility. There are, however, some MRI studies that have associated higher lesion load with manic episodes(12). Unlike Depression, Bipolar can have genetic roots in MS which are indicated by results of family studies in both Bipolar and MS. Other etiological factors include psychological and adjustment issues which can be linked to an individual's personality traits and coping mechanisms. There aren't also studies exploring the management of Bipolar in MS. Despite emerging evidence, the precise link between MS and Bipolar remains unclear(19).

Psychosis

The prevalence of psychosis in MS has been reported within the range of 2% to 4%, approximately threefold higher than that observed in the general population. It is noteworthy that over 90% of MS individuals present symptoms of MS preceding the onset of psychosis(12). This phenomenon underlines an interesting association between MS and psychosis, with approximately 4% of MS patients experiencing psychotic symptoms, a rate two to three times higher than that seen in the general population(21). Moreover, findings from a Canadian study revealed higher incidence and prevalence estimates of schizophrenia within MS populations compared to matched non-MS cohorts. In a Danish register-based study, an increased incidence ratio was found for schizophrenia in the MS population(20). A significantly high hazard ratio was found, following hospital admissions for MS. The results remained similar even after one year of follow-up post-admission. This emphasizes the temporal relationship between MS and the occurrence of psychosis. Conversely, while the hazard ratio for MS following hospital admission for schizophrenia was also elevated, its magnitude was comparatively lower than that observed for schizophrenia after MS onset(20). However, contrasting findings emerged from several studies that reported no detectable association between schizophrenia and MS. Notably, evidence from a nationwide Swedish cohort study suggested a marginal decrease in the risk of schizophrenia among individuals with MS(12). Genetic and immunological factors have been the focus in establishing the relationship between schizophrenia and MS. Clinically, both disorders exhibit commonalities, especially in their onset during young adulthood. Feinstein et al. reported that MS patients with psychosis tend to exhibit a higher total lesion burden, suggesting a potential neuropathological basis for psychotic manifestations in MS (21)(22). Psychotic symptoms manifest based on the underlying pathology of the psychotic disorder. The non-affective psychotic disorders such as schizophrenia feature persecutory delusions and auditory hallucinations whereas affective psychotic disorders such as mania with psychosis or steroid-induced psychosis may manifest with grandiose or erotomanic delusions. Additional etiological factors include inflammatory processes, cytokine profiles, psychosocial stressors, and the use of medicinal cannabis among individuals with MS. While genetic factors may play a role in the development of psychotic illness, evidence supporting their significance remains limited(12).

Psychotherapy in MS Management:

Cognitive Behaviour Therapy

Cognitive Behavioral Therapy (CBT) is used to modify the cognitive, emotional and behavioural aspects of the individual's life. Studies have shown neurobiological changes after treatment with CBT which influences recovery by modulating the functioning of specific sites in the limbic and cortical regions(23). It is a widely used and evidence-based treatment for depression in the general population, and it may even be superior to antidepressant drugs(24). Cognitive behavioural approaches, thus, are beneficial in treating depression in MS(24). Since CBT is a problem-focused technique, helping individuals cope with their difficulties effectively, this can be very useful for MS persons(24). CBT has been used to treat specific symptoms of MS. Studies have primarily focused on depression, fatigue, pain and insomnia.

CBT for MS fatigue aims to decrease fatigue by changing thoughts and beliefs regarding the experience of fatigue(25). Various meta-analyses and systematic reviews have found the CBT model an effective treatment for MS fatigue (25)(23). Since in-person sessions for CBT can be intensive and difficult for persons with MS due to disability, studies have opted for blended and even telephonic sessions. These decrease travelling time for patients and also allow patients to follow CBT in their own time and pace(25). Though both are effective in treating MS fatigue, blended CBT, which is an amalgamation of in-person and online sessions was found to be more efficient, requiring 3 hours less therapist time per patient to deliver treatment. Blended CBT can be considered an effective alternative to face-to-face CBT, saving 3 hours of therapist time(25). However, in both CBT formats, the majority of patients reported a clinically relevant change in fatigue(25). Research by Van Kessel and colleagues used 14-month individual training and telephone-based CBT sessions. Results revealed that CBT is successful as compared to relaxation training in the treatment of fatigue in MS. Moreover, secondary improvement with depression, anxiety and stress were reported by patients (23)(26).

CBT has also been shown to be effective in treating depression in the MS population. It has been equally or even more effective than pharmacotherapy in improving depressive symptoms (27)(24). Various meta-analyses have also been evinced for the same. CBT was used for MS patients with depression wherein the focus was behavioural activation, increased social interaction and modification of cognitive distortions, over an 8-week plan, in a group setting via telephone and in-person sessions. It was found that treatment increased Quality of Life (QOL)(23). CBT with MS patients was shown to help them learn strategies for depression, anxiety and negative thoughts. Some patients even viewed treatment as a long process that continued after therapy sessions and into everyday life(24). Another study that proved the effectiveness of CBT on the level of stress, anxiety, and depression was done on women with MS. The results showed stable effectiveness even 1 month after the intervention. Similarly, the results of a study by Kawaguchi et al. showed a significant impact on patients' anxiety and the effectiveness lasted for 1 year after the study(27). Studies have been done in in-person format and even computerised where some studies have found computerised CBT superior to in-person format(24). The reasons for the effectiveness of CBT on depression in MS is due to the problem-solving nature of CBT. It helps one focus on faults in their thinking patterns, helps develop skills to deal with unpredictability and also emphasizes relaxation. All of these, lead to improvement in emotional and behavioural states. (24)(27).

CBT is effective in treating pain in the general population. However, it is still not used enough in MS. In a recent survey of MS providers, only 26% indicated that they refer patients with pain to a clinical psychologist. This may be due to the dearth of research on CBT for pain in MS. Studies done on pain in MS are mostly a part of an interdisciplinary treatment management that explores strategies like cognitive restructuring and self-hypnosis. They have been found to reduce pain in persons with MS. For instance, a 12-week CBT program on MS pain led to satisfactory treatment in MS persons(26).

CBT for chronic insomnia is the recommended nonpharmacologic treatment. It is more effective in the long term than medication. The effectiveness of treatment persists for over 10 years. Even though there is research supporting the impact of CBT on insomnia, the use of CBT in research studies on insomnia has been sparse. CBT has also been shown to improve sleep. CBT for insomnia has also been studied in both in-person and online formats with both showing similar levels of efficacy in treatment outcomes(28).

Acceptance and Commitment Based Therapy

Acceptance and Commitment Therapy is an acceptance- and mindfulness-based psychological therapy. It is based on the theory that psychological distress results from psychological inflexibility and experiential avoidance(1). ACT

posits that to improve functioning, people must learn to accept, rather than avoid, unwanted and painful thoughts and feelings, thus allowing them to commit to actions in line with their values, even in the presence of these painful experiences(1). The objective of ACT is to create a rich and meaningful life while accepting the pain that inevitably goes with it(29). There are limited studies evaluating the impact of ACT on MS. For instance, Proctor et al. conducted a pilot randomised controlled trial involving 14 MS persons. Over an 8-week telephone-based intervention, ACT was used. A matched control group received treatment as usual (TAU) for comparison. Results showed that there was a significant reduction in anxiety post-intervention. However, there was a high attrition rate with only 5 participants who completed therapy (30)(31). Lotfifar and colleagues studied the effectiveness of ACT, logotherapy and a controlled workshop in dealing with death anxiety among 48 MS patients. Both ACT and LT groups showed a significant reduction in death anxiety as compared to the control group. There was, however, no significant difference between both types of intervention Similarly, when ACT with relaxation training (RT) was compared on an MS sample of 20 in a small RCT, a significant reduction in depression was found in the ACT with RT group while there wasn't any significant anxiety reduction(30). Giovannetti et al. 2021 conducted an ACT-based intervention in a single-arm longitudinal study and observed improvements in depression, anxiety, stress, and quality of life of 237 MS persons(31). In an RCT on 30 MS persons conducted in Iran, CBT (10 sessions, weekly, 90 mins.) and ACT (10 sessions, weekly, 90 mins) were compared with a control group with no sessions. The groups were compared based on the quality of life, resilience and MS Impact Scale. Both CBT and ACT had the same effectiveness in increasing resilience and quality of life post-treatment(9). In a quasi-experimental study, 40 MS persons from Iran were treated with ACT. A significant reduction in depressive symptoms and improved quality of life was found (29).

Mindfulness-based approaches

Mindfulness-based practices have been studied quite extensively in the MS population. Mindfulness involves being in the present fully with one's thoughts, emotions and somatic experiences with an openness and non-judgemental attitude. This attribute can be developed with training(32). These interventions have been used as adjuncts with medication and also as primary psychotherapeutic treatments. They have been shown to reduce anxiety and improve quality of life (33)(34). A significant improvement was found in a study that explored the impact of MBSR on QOL in females with MS patients(35). In an 8-week mindfulness training program on personality profiles, anxiety and depression, the sample revealed higher character traits like self-directedness and interpersonal levels while decreased anxiety, increased mindfulness and conscientiousness were found post-training(32). In a hospital-based study, meditation was used with MS patients for treating depression and fatigue. In a sample of 30 MS patients who were hospitalised for brief periods, mindfulness training was given to them leading to higher mindfulness traits and a decrease in fatigue and depression post-intervention(36). Overall, mindfulness-based interventions have been shown to lead to a decrease in depression, anxiety, pain, stress and fatigue(37). In a study on the effectiveness of Mindfulness-Based Stress Reduction (MBSR) on the psychological and cognitive functioning of MS persons, it was found that patients improved in depressive symptoms, quality of life and fatigue. There was an improvement in self-compassion and mindfulness traits. However, no impact was found on cognitive functioning. Given the multiple limitations of the study including the lack of a control group and small sample size, the results might not be generalizable(34).

Discussion:-

Multiple Sclerosis is a debilitating disease of the central nervous system. With the increasing incidence and prevalence of MS worldwide, the need for a better understanding of the disease is important. There have been advancements in the treatment of MS but mainly in the treatment of physical, visible symptoms. Concerning the psychological symptoms of MS, there is still a long way to go. The role of mental health in a progressive disease like MS cannot be undermined. Studies have shown to exacerbate the symptoms of MS when psychological aspects of the disease are ignored. However, the studies examining the relationship between MS and its psychological correlates have been sparse and scanty. The existing literature heavily focuses on the presence of depression as a psychiatric comorbidity of MS, given its higher prevalence. While other comorbidities like Anxiety, Bipolar and Psychosis haven't been studied for prevalence as extensively yet. However, we cannot ignore the impact of these conditions on overall mental health and MS. It is, hence, important for professionals working in the area of MS to take notice of mental health concerns in MS. A comprehensive evaluation of psychological symptoms at various intervals in the course of MS is thus, important. The management of MS, along with medication can include regular psychotherapy. Psychotherapy for different invisible symptoms of MS has been studied with a primary focus on depression, fatigue, pain and insomnia. Cognitive Behavior Therapy has been shown to improve these symptoms. Focusing on one symptom like fatigue can also lead to secondary improvements in other symptoms like depression.

Acceptance and Commitment Therapy also has been studied in comparison with other therapies like Logotherapy, and Cognitive Behavior Therapy. Though research is less, the effectiveness of ACT has been established in MS. Mindfulness-based techniques have been helpful in inculcating mindfulness traits and also reducing depressive symptoms in MS, post-intervention. In conclusion, a blind eye cannot be turned towards the psychological impact of MS. Even though there is a dearth of research in this domain, the current literature has proven the effectiveness of psychotherapy in the management of MS.

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