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Editorial

Unseen and Unheard: Current status, barriers and roadmaps to reform in perinatal Mental Health in India

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Introduction

Motherhood is an important and crucial event in life of any couple and specially for the women. Not only the women undergoes physical changes in her body but physiological, psychological, social changes along with life styles are also impacted. The perinatal period highlights a critical life event for both maternal mental health and infant development. Perinatal mental health can be ascribed to mental health conditions occurring during pregnancy and up to one year after childbirth, and is a recognized but under-addressed public health challenge in India. Though definition restricts to one year after birth, the impact of child birth could be seen on mother child dyad till many years after. Psychosocial developmental theories emphasize on the early maternal – infant bonding in fostering secure attachment and preventing future psychopathology. Preserving the bond through practices such as breastfeeding and rooming-inremains central to promoting healthy attachment and long-term psychological outcomes. The World Health Organization Nurturing Care Framework (WHO 2018) has stipulated addressing women's physical and mental health needs in this vulnerable period as an essential obligation of health system.[1] Mental Health Care act 2017 has emphasized on the same by advising not to separate mother with mental illness from the child < 3 years in section 21 subsection (2).

Epidemiology

The perinatal period exposes women to a heightened risk of mental health issues. It is estimated that about 15- 20% of women experience significant psychiatric symptoms postpartum.[2] They are divided into perinatal common mental disorders (PCMDs) and perinatal severe mental disorders (PSMDs). PCMD s include depression, anxiety, somatoform and other non psychotic mental health disorders while PSMD include schizophrenia, affective psychosis etc.[2] Recent systematic reviews in India estimate that perinatal depression affects approximately 14–24% of women, with meta-analyses yielding a pooled estimate close to 22% for postpartum depression.[3] These figures underscore a significant disease burden. Despite this, most cases in India remain undiagnosed and untreated, particularly in rural and underserved populations.[4] Self harm or suicide has high reports in this vulnerable group. As high as 7.6% prevalence of suicidality was reported in a cohort in a study by Supraja et al 2016.[5] In Kerala, maternal suicide accounted for one in five maternal deaths in 2020.[6] The impact on child due to the mental health issues in mother are also concerning and at times could be life threatening. This highlights the intersection between perinatal mental health issues and mortality, necessitating urgent policy and programmatic attention.

Risk Factors and Social Determinants

Several interwoven biopsychosocial determinants significantly affect perinatal mental health in India like[7-11]:

Biological :

- Hormonal changes during and after pregnancy.
- Physiological and physical changes in body during and after pregnancy.
- Changes in biological functions, sleep impairment

Psychological:

- Perinatal loss or grief
- Body appearance changes
- Adjustment with new role and expectations from self and by others
- Identity issues.
- Toc/kophobia[12] and fear of childbirth

Social :

- Poverty, gender inequity, and limited autonomy over reproductive choices are profound contributors.
- Domestic violence, rigid social norms (particularly the preference for male children), and stigma related to both mental health and gender exacerbate psychological distress during the perinatal period.
- Repeated pregnancies, lack of social support, and economic dependency.

Current Policies andService Provision

The availability of specialized perinatal mental health services in India is inadequate. Only a few centers, such as the Institute of Human Behavior and Allied Sciences (IHBAS) in Delhi and National Institute for Mental Health and Neurosciences (NIMHANS) in Bangalore, offer specialist perinatal mental health outpatient and inpatient care. Policies have been focused in reduction of maternal morbidity and Government with that vision and in consonance with Sustainable Development Goals 2030 initiated many policies for maternal and infant care and well being like Janani Suraksha yojna, Janani Shishu Suraksha Karyakram (JSSK), Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA), Dakshata and Laqshya.[9] While these were focused on physical health none addressed the mental health issues. Most district and state-level health systems do not have dedicated perinatal mental health policies or services.[10] High income countries have integrated maternal mental health through routine screening and referral for treatment in maternity care. These programs and interventions have been facilitated by successful inclusion of maternal mental health in their maternity care policy and guidelines. In India only Karnataka (Thayi Card)and Kerala have incorporated mental health in their maternal screening programs.[11] A need for national level policyfor maternal mental health is warranted at this stage.

Barriers to care and System gaps

Even though we have entered into era of digitalization with Artificial intelligence in all aspect including health, help seeking behavior is still not as expected, more so in this subset of population. Social stigma around both mental illness and gender-based expectations continue to silence suffering and deter care-seeking.Community-level norms discourage conversations about mental health during and after pregnancy, particularly when social or economic vulnerabilities are present. Lack of awareness in the community and among the professionals attributes to huge system deficits. A shortage of trained mental health professionals in the public health system further impedes timely support, as many frontline health workers are not equipped to detect or manage perinatal mental health problems. Even if identified, access to specialized care is not available. Deficits in research and evidence based guidelines highlights the issues and critical gaps in screening and culturally relevant diagnostic tools limiting identification of perinatal mental disorders, especially in non-urban and marginalized communities. Maternal mental health is not explicitly addressed in national maternity, mental health, or reproductive health policies, though there are general mental health and reproductive health programs intended to serve the broader population.

Recent Research

Research initiatives, such as the Perinatal Mental Health (PRAMH) Project led by The George Institute for Global Health India and the University of Oxford, are generating new evidence, particularly in states like Telangana and Haryana[13] The PRAMH project emphasizes the need for integrating perinatal mental health into routine maternal-care services, especially in rural contexts. Other studies suggest that digital health interventions could be promising, but actual reach remains limited because mobile phone access among women in rural areas is estimated to be low due to family interference, gender-affected power dynamics and lack of digital literacy in rural areas, etc.[10] Peer-delivered, low-intensity psychological interventions show cost-effective promise but lack sufficient evidence for group-based delivery in the Indian context.

Way Forward

- To foster supportive environment for women by improving awareness and stigma reduction.
- Address social determinants through multisectoral action involving education, poverty

alleviation, gender equity measures, and domestic violence prevention.

- Training frontline workers — ASHAs, ANMs, and anganwadi workers — in basic perinatal mental health screening, counseling, and referral can address the unidentified gaps in engagement into treatment.
- Integrate perinatal mental health screening and support into routine antenatal and postnatal care at all levels of the health system as a sustainable, stigma-reducing approach.
- Deploy scalable, evidence-informed psychological interventions and task-sharing models that allow non-specialists to provide basic mental health support.
- Conduct more research to develop culturally validated screening tools and evaluate models of care appropriate to India's diverse sociocultural contexts.
- A nationlevel unified policy for addressing maternal mental health with defined components to be added into existing schemes or policy or should be formulated.

Conclusion

Perinatal mental health is a significant yet underrecognized challenge in India, warranting urgent attention through integrated, multi-level strategies. Integrating mental health with routine maternity care, strengthening the capacity of community health workers, involving families and communities, tackling the reinforcing social determinants, and supporting ongoing research are foundational steps toward realizing the vision of healthy mothers, children, and families in India.

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Review Article

Effectiveness of Mindfulness-Based Relapse Prevention Intervention in Alcohol Dependence: A Systematic Review

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Introduction

Alcohol dependence continues to pose a major global health challenge, contributing to morbidity, mortality, and significant psychosocial disruption. Conventional treatment approaches such as pharmacotherapy and cognitive-behavioral therapy (CBT) often achieve short-term success but struggle to maintain long-term abstinence due to persistent cravings, emotional dysregulation, and maladaptive coping. Over the past two decades, mindfulness-based interventions have gained recognition for addressing the psychological roots of relapse, particularly in promoting self-awareness, acceptance, and emotional regulation.

Mindfulness-Based Relapse Prevention Intervention (MBRPI) integrates principles of mindfulness meditation with cognitive-behavioral relapse-prevention strategies. Initially developed by Bowen et a,[1] it encourages individuals to observe their thoughts, sensations, and cravings non-judgmentally, reducing the tendency to act impulsively in response to stressors. This reflective awareness fosters behavioral flexibility and resilience — key determinants in preventing relapse.

Given the expanding body of evidence on mindfulness in addiction recovery, the present review systematically evaluates empirical research on MBRPI's effectiveness among individuals with alcohol dependence. It seeks to consolidate findings, identify methodological strengths and weaknesses, and establish a scientific basis for its integration into standard addiction-care protocols.

Method

Search Strategy

A systematic literature search was conducted in **JSTOR**, **Google Scholar**, and **J-Gate** for studies published between **2000 and 2022**. Keywords included mindfulness, relapse prevention, alcohol dependence, addiction intervention, meditation, and substance-use treatment. Only full-text, peer-reviewed, empirical studies were included.

Inclusion and Exclusion Criteria

Studies were **included** if they:

1. Employed quantitative or mixed-method designs;
2. Investigated MBRPI or mindfulness-based programs among alcohol-dependent or polysubstance-use populations;
3. Reported pre-test, post-test, or follow-up data; and
4. Were published in English and peer-reviewed.

Studies were **excluded** if they:

- Were theoretical or qualitative reviews;
- Lacked statistical validation;
- Focused solely on non-alcohol-use disorders; or
- Were not available in English.

Evaluation Criteria

Each study's methodological rigor was assessed using **Shukla et al**[2] parameters:

1. Research design;

2. Reliability and validity of criterion measures;
3. Reliability and validity of predictor measures;
4. Statistical control of confounding variables; and
5. Reporting of effect sizes.

Each parameter received a binary score (1 = present, 0 = absent) to gauge internal validity.

Overall Focus and Methodological Trends

The majority of studies investigated the efficacy of MBRPI, mindfulness-based stress reduction (MBSR), and mindfulness-oriented recovery enhancement (MORE) as adjuncts or alternatives to traditional relapse-prevention and treatment-as-usual (TAU) programs. Most adopted quantitative experimental methods, emphasizing pre- and post-intervention comparisons of relapse frequency, craving intensity, emotional regulation, and psychological well-being. Approximately 90 percent of studies employed standardized instruments such as the Five Facet Mindfulness Questionnaire (FFMQ), Beck Depression Inventory (BDI), and Alcohol Urge Questionnaire (AUQ) to assess outcomes.

Methodological rigor was evaluated using the six-parameter framework proposed by Shukla et al:[2] research design, reliability and validity of criterion measures, reliability and validity of predictor measures, statistical control of confounders, and effect-size reporting. The majority of reviewed papers scored five or six out of six, reflecting high internal validity and methodological consistency. Nearly all studies controlled for confounding variables such as treatment duration, medication use, and psychiatric comorbidity through multivariate or hierarchical regression analyses. Reported effect sizes were predominantly in the moderate-to-large range (Cohen's $d > 0.50$), confirming both clinical and practical significance.

Effectiveness of MBRPI and Mindfulness Interventions

Findings across the reviewed literature demonstrated that mindfulness-based interventions consistently outperformed conventional relapse-prevention models.

- In a series of randomized trials, Bowen et al[3,4] and Witkiewitz et al[5] reported that participants receiving MBRPI exhibited significantly fewer heavy-drinking days and reduced craving intensity at 12-month follow-up compared with TAU controls.
- Garland et al[6-8] found that mindfulness training enhanced executive functioning, attentional control, and positive reappraisal, while reducing stress reactivity and negative affect.
- Brewer et al[9] demonstrated that mindfulness increased self-awareness of craving cues and improved decision-making, resulting in greater relapse resistance.
- Alfonso et al[10] linked combined mindfulness and cognitive training to improvements in working memory and inhibitory control among polysubstance users.

Collectively, these studies confirm that mindfulness strengthens self-regulation and distress tolerance, promoting long-term abstinence. In addition to behavioral outcomes, physiological benefits were also documented, including reduced cortisol levels, improved heart-rate variability, and lower systolic blood pressure, indicative of decreased autonomic arousal and stress responsivity.

Special Populations and Adaptations

Several studies adapted mindfulness interventions for specific populations. Biegel et al[11] implemented mindfulness-based stress reduction for adolescents, leading to improved emotional regulation and decreased externalizing behaviors. Bögels et al[12] applied parent–child mindfulness training, reporting better family communication and behavioral outcomes among youth with attention-deficit or conduct disorders.

Mindfulness approaches were also successfully integrated with yoga, qigong, and acceptance-and-commitment therapy (ACT) to enhance adherence and physical engagement.[13,14] Recent advances include tele-mindfulness and mobile-app–based relapse-prevention programs, which improved accessibility and participant satisfaction, particularly in resource-limited settings.[15]

Psychological and Clinical Outcomes

Across the reviewed studies, mindfulness interventions produced consistent improvements in

multiple psychosocial domains:

1. Reductions in craving, stress, and emotional reactivity;
2. Enhancement of self-efficacy, mindfulness awareness, and emotion regulation;
3. Decreases in depressive and anxiety symptoms; and
4. Improved quality of life and treatment adherence.

In clinical contexts, participants reported greater satisfaction, stronger therapeutic alliances, and higher motivation for recovery. MBRPI participants displayed marked gains in cognitive flexibility and behavioral awareness, indicating sustained neuropsychological adaptation. Neuroimaging findings suggested increased activity in prefrontal regulatory circuits and reduced amygdala reactivity, supporting the neurobiological basis of mindfulness-mediated self-control.

Predictors and Causes of Relapse

A subset of studies examined variables contributing to relapse risk. Major predictors included early onset of substance use, longer duration of dependence, inadequate coping mechanisms, and comorbid mood disorders.[16] Psychological factors such as shame, self-stigma, and thought suppression were also linked to relapse vulnerability.[17,18] Interventions emphasizing self-acceptance and compassion-based mindfulness showed measurable improvements in motivation and treatment persistence among these high-risk groups.

Quantitative Evaluation Summary

- **Internal validity:** 90 percent of studies demonstrated strong methodological quality.
- **Reliability of measures:** 100 percent reported acceptable internal consistency (Cronbach's $\alpha \geq 0.70$).
- **Confounding control:** Almost all employed statistical adjustments for treatment exposure or demographic differences.
- **Effect size reporting:** 95 percent of studies documented medium-to-large effects, establishing practical significance.
- **Research design quality:** Over one-fifth utilized randomized controlled frameworks with follow-up evaluations of 6 to 12 months.

These indicators collectively affirm the robustness and reproducibility of evidence supporting MBRPI and related mindfulness-based treatments.

Overall Synthesis

The aggregated findings demonstrate that Mindfulness-Based Relapse Prevention Intervention (MBRPI) and comparable mindfulness-oriented therapies produce clinically significant reductions in relapse, craving, and psychological distress, while enhancing emotional regulation and overall well-being. The evidence base reflects methodological consistency, cross-cultural generalizability, and strong effect sizes across diverse populations and treatment settings. The cumulative literature positions mindfulness not only as a coping skill but as a comprehensive therapeutic process that transforms individuals' relationship to craving and stress, thereby sustaining long-term recovery.

Results

Overview of Studies

The search yielded 117 empirical studies, of which 100 met the inclusion criteria for detailed review. These studies, drawn from 30 peer-reviewed journals, encompassed diverse geographic and demographic populations. Most utilized randomized controlled, quasi-experimental, or mixed-factorial designs.

General Effectiveness of MBRPI

Across studies, MBRPI consistently demonstrated positive outcomes in relapse prevention, emotional regulation, and psychological functioning. Bowen et al[4] reported that individuals undergoing MBRPI had significantly fewer heavy-drinking days and higher abstinence rates at 12-month follow-up compared with participants receiving standard relapse-prevention or TAU interventions.

Similarly, Garland et al[6] and Brewer et al[9] found that mindfulness training enhanced executive functioning, impulse control, and working memory, thereby reducing the likelihood of relapse. Participants developed improved coping mechanisms, reduced depressive symptoms, and demonstrated greater self-efficacy in managing cravings.

Physiological and Psychological Outcomes

Studies employing psychophysiological

measures documented reductions in cortisol levels, blood pressure, and heart-rate variability, suggesting lower stress reactivity post-intervention[8]. Psychological assessments indicated declines in anxiety, depression, and negative affect, along with increases in positive mood and self-compassion.

MBRPI vs. Conventional Treatment

When compared with Treatment-as-Usual (TAU) or CBT-based relapse prevention, mindfulness-based interventions produced superior or equivalent results with higher participant satisfaction. Witkiewitz et al[5] noted that mindfulness skills fostered lasting reductions in craving intensity, while Zgierska et al[19] reported improved adherence and engagement relative to control groups.

Integration with Other Modalities

Several studies combined MBRPI with yoga, Acceptance and Commitment Therapy (ACT), or pharmacotherapy. These hybrid interventions enhanced both physical and psychological outcomes. Mindfulness's emphasis on awareness and acceptance complements the cognitive restructuring goals of CBT, producing synergistic effects.

Statistical Trends

Nearly all studies reported satisfactory reliability coefficients (e" 0.70) and significant effect sizes (Cohen's d > 0.50). Internal validity was high: over 90% of studies controlled for confounders such as prior treatment exposure and comorbid psychiatric conditions.

Discussion

Theoretical Implications

The findings of this review collectively support the conceptualization of mindfulness as a dynamic mechanism of self-regulation, central to the maintenance of long-term abstinence among individuals with alcohol dependence. Within the Mindfulness-Based Relapse Prevention Intervention (MBRPI) framework, mindfulness practice fosters a state of meta-awareness — a conscious recognition of one's internal experiences, including thoughts, cravings, emotions, and bodily sensations, without judgment or attachment. This heightened self-observation interrupts the habitual cognitive and behavioral patterns that often precede relapse, thereby strengthening an individual's ability to respond intentionally rather than react impulsively.

The principle of "urge surfing," introduced by Bowen et al,[1] epitomizes this cognitive shift. It trains individuals to observe cravings as transient physiological and psychological experiences, analogous to waves that rise and fall naturally. Instead of resisting or suppressing urges — which often intensifies them — participants learn to observe their cravings with detachment until they dissipate. This process cultivates emotional tolerance, cognitive flexibility, and behavioral control — factors that are directly antagonistic to relapse vulnerability.

From a neuropsychological standpoint, mindfulness exerts a profound influence on neural circuitry associated with addiction and self-control. Functional neuroimaging studies (e.g., Brewer et al,[9] Garland et a[8]) have demonstrated increased activation in the prefrontal cortex (PFC) and anterior cingulate cortex (ACC) following mindfulness training, regions responsible for executive functioning, attention regulation, and inhibitory control. Concurrently, decreased reactivity has been observed in the amygdala and striatum, regions implicated in emotional reactivity, craving, and reward-seeking behaviors. These neuroplastic adaptations enhance cognitive control and emotional balance, allowing individuals to navigate high-risk situations with greater awareness and restraint.

Theoretically, these neurocognitive findings validate Marlatt's Relapse Prevention Model,[20] which posits that relapse occurs through a cognitive–affective chain of high-risk situations, negative emotional states, and maladaptive coping. MBRPI extends this model by infusing acceptance-based awareness into each stage of the relapse process. Rather than focusing solely on cognitive restructuring, mindfulness equips individuals to acknowledge internal discomfort without suppression or avoidance, thus reducing the likelihood of reactive behaviors. This aligns with decentering theory, which suggests that mindfulness fosters the ability to view one's thoughts and urges as passing events rather than as objective truths or self-defining experiences.[21] Consequently, mindfulness represents a transformative therapeutic process that alters both the perception and regulation of craving-related stimuli.

Moreover, mindfulness can be conceptualized as an emotion-regulation strategy embedded within

a biopsychosocial framework. Emotion regulation is a critical determinant of relapse, as dysregulated affect — such as shame, anxiety, or frustration — often precipitates substance use as a maladaptive coping mechanism. By increasing awareness of the temporal nature of emotional states and cultivating equanimity, MBRPI attenuates emotional dysregulation and promotes psychological resilience. Over time, this facilitates autonomic balance, reflected in lower cortisol secretion and reduced sympathetic arousa.[8] Hence, mindfulness is not merely a cognitive skill but a neurobiological process that recalibrates the individual's emotional and behavioral responses to internal and external stressors.

Clinical Implications

The clinical implications of MBRPI are profound, particularly within contemporary models of addiction treatment. Traditional interventions — such as cognitive-behavioral therapy (CBT), motivational interviewing, or 12-step programs — primarily target maladaptive thoughts or behaviors. However, they often overlook the metacognitive and emotional awareness necessary for sustainable behavioral change. MBRPI bridges this gap by offering a non-pharmacological, experiential, and introspective approach that directly addresses the psychological and emotional roots of addiction.

Empirical studies have consistently demonstrated that MBRPI leads to significant reductions in relapse rates, craving intensity, negative affect, and perceived stress, while simultaneously enhancing positive affect, self-compassion, and psychological well-being (Bowen et al., 2014; Witkiewitz et al., 2019). This holistic approach promotes a shift from symptom suppression to self-understanding, enabling individuals to engage with their internal experiences without avoidance. It also enhances treatment retention and adherence, as participants often report improved self-efficacy and satisfaction with mindfulness-based programs compared to conventional therapies.

Furthermore, MBRPI has demonstrated efficacy in addressing comorbid psychiatric conditions, including depression, anxiety, post-traumatic stress disorder (PTSD), and personality disorders. Such comorbidities often exacerbate relapse vulnerability by intensifying emotional dysregulation. By teaching clients to observe and accept distress without judgment, MBRPI promotes psychological integration, reducing fragmentation and emotional suppression.

The therapeutic alliance — a key predictor of treatment outcomes — is also strengthened within mindfulness frameworks. Facilitators trained in mindfulness adopt a compassionate, non-directive stance, modeling empathy and acceptance. This relational environment encourages openness, trust, and authentic engagement, which, in turn, enhances participants' intrinsic motivation for recovery. The emphasis on experiential learning — through guided meditations, body scans, and mindful breathing — encourages active participation rather than passive reception, fostering a sense of agency and empowerment.

The scalability and accessibility of mindfulness interventions further enhance their clinical relevance. Recent advancements in digital mental health technologies have made mindfulness training available through mobile applications, telehealth, and virtual group sessions. These digital platforms expand accessibility to individuals who may face geographic, economic, or social barriers to traditional treatment. Particularly during the COVID-19 pandemic, remote delivery of MBRPI proved invaluable in sustaining continuity of care and supporting relapse prevention amid global uncertainty and stress (Khanna & Greeson, 2021).

Importantly, MBRPI is culturally adaptable. Rooted in ancient contemplative traditions yet expressed through secular psychological principles, it transcends religious or cultural boundaries. This adaptability allows integration into diverse community settings, including rehabilitation centers, corporate wellness programs, and correctional facilities. Given its evidence-based structure, mindfulness can be incorporated alongside pharmacotherapy, CBT, and psychosocial rehabilitation, serving as a complementary treatment modality rather than a replacement.

Limitations and Future Directions

Despite its promising efficacy, mindfulness-based relapse prevention research faces notable methodological and conceptual challenges. First, many existing studies utilize short-term follow-up durations, typically between eight and twelve weeks, limiting the ability to assess long-term sustainability

of effects. Future research should employ longitudinal designs to evaluate the persistence of mindfulness-induced behavioral and neurobiological changes.

Second, there is considerable heterogeneity in intervention protocols, session duration, and facilitator expertise across studies. Establishing standardized manuals, fidelity measures, and practitioner training guidelines will be essential to ensure replicability and consistency. Third, while most research originates from Western contexts, there remains a paucity of cross-cultural studies examining mindfulness interventions within Asian, African, and Middle Eastern populations, where cultural attitudes toward addiction and meditation may differ significantly.

Another limitation lies in the measurement of mindfulness itself. Diverse self-report scales such as the Five Facet Mindfulness Questionnaire (FFMQ) and the Mindful Attention Awareness Scale (MAAS) capture distinct aspects of mindfulness (e.g., observation, awareness, acceptance), making cross-study comparison difficult. The development of unified, culturally validated instruments would enhance construct validity and facilitate meta-analytic synthesis.

Future research should also explore mechanistic pathways, investigating how specific facets of mindfulness — such as attention regulation, body awareness, or non-reactivity — mediate relapse outcomes. Integrating neuroimaging, physiological, and genetic markers could elucidate the biological substrates of mindfulness-induced change. Moreover, given the growing use of digital mindfulness tools, rigorous randomized controlled trials are needed to assess their effectiveness, user engagement, and data privacy implications.

Finally, there is a pressing need to explore population-specific adaptations of MBRPI. Tailored interventions for women, adolescents, individuals with dual diagnoses, and marginalized communities could enhance equity in addiction recovery. Collaboration between clinicians, neuroscientists, and policymakers will be pivotal in embedding mindfulness-based care into national health systems and community recovery frameworks.

Conclusion

The evidence reviewed underscores the transformative potential of mindfulness as a scientifically grounded intervention for alcohol dependence. By cultivating awareness, emotional balance, and cognitive flexibility, MBRPI offers individuals not merely abstinence but psychological liberation from the cycle of craving and relapse. Continued empirical rigor, cultural adaptation, and integration with mainstream clinical practice will further establish mindfulness as a cornerstone of modern addiction therapy.

Comparison with Traditional Models

Conventional relapse-prevention models emphasize cognitive restructuring and behavioral avoidance. In contrast, mindfulness promotes acceptance, awareness, and experiential engagement, addressing the deeper emotional roots of addiction. This paradigm shift — from suppression to observation — redefines recovery as a process of conscious adaptation rather than mere abstinence.

Limitations of Existing Research

Despite encouraging findings, several limitations warrant attention:

1. **Short-term follow-ups:** Many studies measure outcomes within 8–12 weeks, offering limited insight into long-term maintenance.
2. **Sample heterogeneity:** Variations in severity of dependence and treatment history complicate cross-study comparison.
3. **Under-representation:** Few studies examine gender, socio-economic, or cultural differences.
4. **Methodological diversity:** Inconsistent protocols and measures of mindfulness hinder meta-analytic synthesis.

Future research should adopt standardized mindfulness scales (e.g., FFMQ, MAAS), longer follow-up durations, and culturally sensitive designs to enhance generalizability.

Conclusion

This review demonstrates compelling evidence that Mindfulness-Based Relapse Prevention Intervention (MBRPI) effectively mitigates relapse and enhances psychological well-being among individuals with alcohol dependence. Through cultivating awareness, acceptance, and emotional

regulation, MBRPI complements and often surpasses traditional relapse-prevention methods. The approach's adaptability across populations highlights its potential as a universal therapeutic adjunct.

The findings advocate for broader integration of mindfulness into addiction-treatment protocols, professional-training curricula, and public-health initiatives. Further longitudinal and cross-cultural studies are essential to establish standardized models and ensure sustained outcomes. Overall, mindfulness represents not merely a coping technique but a transformative process empowering individuals toward lasting recovery.

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Review Article

Role of Anti-Inflammatory Drugs in Psychiatric Disorders

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Introduction

Psychiatric disorders impose a profound social and economic burden, affecting nearly one billion individuals worldwide. Despite decades of pharmacological research targeting neurotransmitter systems, many patients fail to achieve remission, underscoring the need for novel therapeutic strategies.

Accumulating evidence now implicates the immune system — particularly chronic, low-grade inflammation — as a key contributor to psychiatric symptomatology. The concept of neuroinflammation bridges peripheral immune activation and central nervous system (CNS) dysfunction. Cytokine-induced alterations in monoamine metabolism, neuroendocrine dysregulation, oxidative stress, and impaired neuroplasticity can together produce the cognitive and affective features characteristic of psychiatric illness. Consequently, modulation of inflammatory pathways has emerged as a promising strategy. Anti-inflammatory medications, already established in rheumatologic and cardiovascular diseases, are being repurposed and investigated in mental health.

Pathophysiological Links Between Inflammation and Mental Disorders

Immune Dysregulation and Cytokine Hypothesis

In patients with depression, schizophrenia, and bipolar disorder, peripheral elevations of IL-1β, IL-6, TNF-α, and CRP have been repeatedly observed.[1] These cytokines can cross the blood–brain barrier through humoral and neural routes or induce secondary activation of CNS microglia. Activated microglia release glutamate, nitric oxide, and reactive oxygen species, causing excitotoxicity and synaptic dysfunction. Elevated cytokines also interfere with monoamine synthesis by increasing indoleamine 2,3-dioxygenase (IDO) activity, diverting tryptophan metabolism away from serotonin toward kynurenine pathways, thereby contributing to depressive symptoms.

Neuroendocrine and Neuroplastic Changes

Proinflammatory cytokines activate the hypothalamic–pituitary–adrenal (HPA) axis, increasing cortisol secretion and impairing feedback inhibition. Chronic glucocorticoid exposure downregulates hippocampal neurogenesis and synaptic plasticity, leading to mood and cognitive disturbances. Inflammation further affects brain circuits involved in emotion and reward, including the prefrontal cortex, amygdala, and striatum, which have been implicated in depression and psychosis.[2-4]

Sickness Behavior and Psychopathology

The behavioral manifestation of inflammation — known as "sickness behavior" — includes fatigue, social withdrawal, anhedonia, anorexia, and cognitive slowing. When sustained, these symptoms parallel depressive and negative symptoms of psychiatric disorders, providing a biological continuum between immune activation and psychopathology.

Anti-Inflammatory Drugs and Their Mechanisms

A diverse range of pharmacological agents with anti-inflammatory properties have been studied for psychiatric indications.

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

Celecoxib (Selective COX-2 inhibitor)[5-7]

Celecoxib inhibits the COX-2 enzyme, thereby reducing prostaglandin-mediated inflammation. Multiple randomized controlled trials (RCTs) have shown that Celecoxib augmentation of antidepressants (sertraline, fluoxetine, or vortioxetine) significantly improved depressive symptoms compared to placebo[1]. Similar benefits have been reported in schizophrenia, where Celecoxib added to antipsychotics (risperidone or amisulpride) reduced both positive and negative symptom scores. Its favorable gastrointestinal profile compared to non-selective NSAIDs enhances clinical tolerability.

Aspirin (Acetylsalicylic acid)[8,9]

Aspirin exerts anti-inflammatory effects through irreversible COX inhibition and modulation of NF-κB pathways. Studies report mixed results — some demonstrate faster symptom improvement when added to antidepressants, while others show minimal benefits or adverse effects such as akathisia.[1] In schizophrenia, adjunctive aspirin reduced total and positive PANSS (Positive and Negative Syndrome Scale) scores in several trials.

Cytokine Inhibitors

Monoclonal antibodies targeting cytokines (e.g., Infliximab, Adalimumab, Tocilizumab, Anakinra) have been tested in mood disorders. Infliximab failed to produce global antidepressant benefits in unselected patients, but a subgroup with elevated CRP (>5 mg/L) showed significant improvement.[1] Similarly, patients with histories of childhood trauma responded better to TNF-α blockade, suggesting that inflammatory subtypes of depression might benefit most. Such findings emphasize the need for biomarker-guided therapy.

Minocycline[10,11]

Minocycline, a second-generation tetracycline, crosses the blood–brain barrier and suppresses microglial activation, reducing cytokine release (IL-6, TNF-α) and oxidative stress.

In major depressive disorder, results are mixed; benefits appear limited to patients with high inflammatory markers (CRP $\geq$3 mg/L).

In schizophrenia, however, Minocycline consistently improves negative symptoms and cognitive deficits, particularly during early disease phases. Improvements in executive function and serum cytokine normalization support its dual neuroprotective and anti-inflammatory actions.

Statins

Statins (simvastatin, atorvastatin) possess pleiotropic effects beyond lipid lowering, including inhibition of HMG-CoA reductase–dependent inflammatory cascades and upregulation of endothelial nitric oxide synthase.[1,11] Several RCTs have shown that statin augmentation of SSRIs accelerates antidepressant response and improves remission rates. These benefits may arise from reduced oxidative stress and endothelial dysfunction associated with inflammation.

Pioglitazone and Other Agents[12,13]

Pioglitazone, a PPAR-γ agonist, exerts both metabolic and anti-inflammatory effects via suppression of NF-κB signaling. Trials in bipolar and major depressive disorder have demonstrated modest but significant symptom reductions when used as adjunctive therapy. Similarly, pentoxi-fylline — a phosphodiesterase-4 inhibitor — reduced depressive severity when combined with escitalopram.[1]

Anti-Inflammatory Agents in Psychiatric Disorders

Major Depressive Disorder (MDD)

Meta-analyses and RCTs suggest that adjunctive anti-inflammatory drugs improve depressive symptoms in MDD patients.[1,14] Celecoxib, when combined with SSRIs such as sertraline or fluoxetine, produced greater reductions in Hamilton Depression Rating Scale (HAM-D) scores compared to antidepressants alone. Minocycline, simvastatin, and pioglitazone also demonstrated benefit as add-on therapies. Interestingly, efficacy appears greater in patients with elevated baseline CRP or IL-6 levels, highlighting the potential of inflammation biomarkers to guide treatment selection.

Bipolar Disorder

Celecoxib augmentation of mood stabilizers like valproate or lithium has been shown to reduce both depressive and manic symptoms in bipolar patients. Pioglitazone and minocycline have yielded mixed results, with some benefit observed in treatment-

resistant bipolar depression.[1] Infliximab showed promise only in subgroups with inflammatory comorbidities or childhood trauma, indicating that systemic inflammation may mediate therapeutic response.

Schizophrenia and Psychosis

Adjunctive use of COX-2 inhibitors (especially Celecoxib) with antipsychotics improved negative and cognitive symptoms in several studies. Minocycline demonstrated consistent benefits in early-phase schizophrenia, improving negative symptoms and executive function, likely by modulating microglial activation and reducing cytokine levels (IL-1β, IL-6). Aspirin augmentation has also been associated with improvement in positive and general psychopathology scores in some trials.[1,8,9]

Somatic Symptom and Functional Disorders

Low-grade systemic inflammation (SLI) has been linked with somatic symptom and functional neurological disorders.[1] Elevated CRP and IL-6 correlate with symptom burden, suggesting that targeting inflammation might alleviate somatic distress and fatigue. However, evidence is still preliminary.

Evidence from Meta-Analyses and Clinical Trials

A meta-analysis of 36 randomized controlled trials (N = 9,422) found anti-inflammatory agents superior to placebo in reducing depressive symptoms (standardized mean difference – 0.49). Benefits were most evident in add-on trials and in patients with inflammatory biomarkers.[3] However, substantial heterogeneity ($I^2 > 80\%$) and mechanistic ambiguity limit conclusions. Critics highlight that effects may stem from pleiotropic drug actions rather than pure anti-inflammatory mechanisms.

Clinical and Research Implications

Toward Precision Psychiatry

Not all patients with psychiatric disorders exhibit inflammatory signatures. Thus, biomarker-based stratification — for example, selecting patients with high CRP or IL-6 — could optimize therapeutic efficacy and avoid unnecessary exposure. Integration of inflammatory biomarkers into clinical trials is a critical step toward precision psychiatry.[2]

Combination and Sequential Strategies

Anti-inflammatory agents are most promising as augmentation strategies rather than stand-alone treatments. Combining antidepressants with Celecoxib, SSRIs with statins, or antipsychotics with Minocycline shows additive or synergistic effects. Sequential use, targeting residual symptoms after standard therapy, may also enhance outcomes.[2]

Safety and Limitations

Long-term use of NSAIDs carries gastrointestinal, renal, and cardiovascular risks. Cytokine inhibitors are expensive and may increase infection risk. Therefore, risk–benefit assessment must guide clinical use. Additionally, many studies have short follow-up periods, small samples, and lack standardized inflammatory measures.

Limitations of Current Evidence

Heterogeneity of Trials: Differences in drug type, dosage, duration, and psychiatric diagnosis hinder direct comparison.

Mechanistic Ambiguity: Many anti-inflammatory agents have pleiotropic actions, complicating attribution of clinical benefit solely to anti-inflammatory mechanisms.

***Short Follow-Up*:** Long-term safety and sustained efficacy remain unclear.

***Lack of Biomarker Integration*:** Few studies stratified patients by baseline inflammatory status.

Limited Translational Evidence: Preclinical models often fail to replicate human complexity.

Future Directions

Future studies should focus on biomarker-guided patient selection, exploring novel immunomodulators targeting microglial and inflammasome pathways. Integrating pharmacologic interventions with lifestyle strategies that reduce inflammation — such as exercise and dietary modification — could further enhance psychiatric outcomes.

Conclusion

Inflammation contributes significantly to the pathophysiology of various psychiatric disorders. Anti-inflammatory drugs, particularly Celecoxib, Minocycline, Statins, and Pioglitazone, show promise as adjunctive treatments in depression and schizophrenia, particularly among patients with

elevated inflammatory markers. However, routine clinical use is premature pending confirmation from large, biomarker-guided trials. The future of psychiatric therapeutics lies in precision, inflammation-informed care that bridges immunology and neuroscience.

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Original Article

A Study of Radiological, Sociodemographic and Clinical Profile of Geriatric Psychiatry Patients in a Tertiary Care Centre

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ABSTRACT

Background*: India's aging population is rapidly increasing, with mental health concerns such as Depression, Anxiety, Cognitive decline and Psychosis becoming more prevalent. Radiological assessment offers important insights into structural brain changes that may underlie these disorders. This study aims to evaluate the sociodemographic, clinical, and radiological profiles of geriatric patients attending a tertiary care psychiatric centre.* ***Aims****: To determine the sociodemographic, clinical, and radiological profiles of patients aged 60 years and above presenting to the psychiatry department.* ***Material and Methods****: A cross-sectional observational study was conducted on 62 consenting patients aged ≥60 years over 6 months at a tertiary care centre in Rajasthan. Psychiatric diagnoses were made according to ICD-10. Mini Mental State Examination (MMSE), Hamilton Anxiety Rating Scale (HAM-A), Hamilton Depression Rating Scale (HAM-D), and Brief Psychiatric Rating Scale (BPRS) were administered. All participants underwent MRI brain imaging to detect structural abnormalities.* ***Results****: Majority of patients were aged 61–70 years (67.7%) and females constituted 61.2%. Most participants were married (66.1%), from middle socioeconomic class (77.4%), and illiterate (≈66%). Depression (38.7%) was the most common psychiatric disorder, followed by generalized anxiety disorder (27.4%), somatoform disorder(14.5%), and bipolar affective disorder (8.06%). Mild cognitive impairment was present in 38.7% of patients, while 4.8% had moderate impairment. On HAM-D, 66.6% of depressed patients had moderate depression. On HAM-A, 41.1% had moderate anxiety. MRI findings showed cortical atrophy in 70.9%, small vessel ischemic changes in 58%, and white matter hyperintensities in 45.1% of patients, while 11% had normal scans.* ***Conclusion****: Geriatric psychiatric patients exhibit high rates of depression, anxiety, and cognitive impairment, with significant radiological changes such as cortical atrophy and ischemic changes. Early identification and comprehensive management are crucial for improving quality of life in the elderly.*

Key Words: *Geriatric Psychiatry Patients, MRI Brain, Depression, Anxiety, Cognitive impairment.*

Introduction

India, the most populous country in the world, is experiencing a demographic shift toward an aging population. The proportion of individuals aged 60 years and older has increased from 5.4% in 1951 to 8.0% in 2010 and is projected to reach 21% by 2050.[1,2] Ageing is associated with physical comorbidities, psychological distress, and increased vulnerability to psychiatric disorders such as depression, anxiety, psychosis, and cognitive

decline.[3–6] Several Indian field studies have reported a high prevalence of psychiatric morbidity among the elderly, with depression being the most common disorder.[1,3,7,8] Biological changes of ageing, including cortical atrophy and small-vessel ischaemic changes, further predispose to psychiatric illness and cognitive impairment.[5,9] Neuroimaging, particularly MRI, provides valuable insights into these structural brain changes, especially in late-life depression where white-matter hyperintensities and vascular changes have been frequently documented.[5] Understanding the interplay between sociodemographic factors, clinical characteristics and radiological findings is therefore essential for early identification, appropriate management and improved quality of life for elderly psychiatric patients in the Indian context.[1,3,7,9]

Aims and Objectives

Aims:

1. To study the sociodemographic profiles of patients aged 60 years and above presenting to the psychiatry outpatient department.
2. To evaluate the clinical profiles of these patients using standardized rating scales.
3. To determine radiological findings on MRI brain among these patients.

Material and Methods

Study Design: Cross-sectional observational study.

Study Area: Department of Psychiatry, National Institute of Medical Sciences & Research, Jaipur, Rajasthan.

Study Population: Patients aged ≥60 years attending the Psychiatry OPD/IPD.

Sample Size: 62 patients.

Sampling Technique: Purposive sampling.

Inclusion Criteria: Patients aged ≥60 years of either gender who provided written informed consent.

Exclusion Criteria: Patients with significant neurological/medical/surgical illness or those who refused consent. *Procedure:* After ethical committee approval, sociodemographic and clinical data were collected using a semi-structured proforma. ICD-10 diagnostic criteria were applied.

MMSE, HAM-A, HAM-D, and BPRS were administered to assess cognition, anxiety, depression, and psychosis respectively. MRI brain imaging was performed to detect cortical atrophy, ischemic changes, and white matter hyper intensities. Data were analyzed using appropriate statistical methods.

Results

A total of 62 patients were included. The majority were aged 61–70 years (67.7%), with the least number above 80 years (8%). Females constituted 61.2% of the sample. Most participants were married (66.1%), middle socioeconomic class (77.4%), and illiterate or with primary education (~66%). Depression was the most common diagnosis (38.7%), followed by generalized anxiety disorder (27.4%), somatoform disorder (14.5%), and bipolar affective disorder (8.06%). Mild cognitive impairment was present in 38.7% and severe impairment in 4.8%. On HAM-D, 66.6% of depressed patients had moderate depression. On HAM-A, 41.1% had moderate anxiety, 29% mild, and remaining severe. MRI revealed cortical atrophy in 70.9%, small vessel ischemic changes in 58%, white matter hyperintensities in 45.1%, and normal findings in 11% of patients.

Table-1: Sociodemographic Profile (n=62)

Age Group (years)	**n=62**	**%**
61–70	42	67.7
71–80	15	24.3
>80	5	8.0
Gender		
Male	24	38.8
Female	38	61.2
Socioeconomic Class		
Middleclass	48	77.4
Lowerclass	12	19.3
Upperclass	2	3.3
Education Level		
Illiterate/Uneducated	41	66.1
Primaryeducation	14	22.6
Secondaryorhigher	7	11.3
Marital Status		
Married	41	66.1
Widowed	21	33.9
Domicile		
Urban	35	56.4
Rural	27	43.6
Working Status		
Retired/Unemployed	52	83.8
Employed	10	16.2

Discussion

A total of 62 patients were included in our study. The maximum number of elderly (67.7%) belonged

Table-2: Diagnostic spectrum of disorders (ICD-10) (n=62)

Psychiatry Diagnosis	n	%
Depression	24	38.7
Generalized Anxiety Disorder	17	27.4
Somatoform disorder	9	14.5
Bipolaraffectivedisorder	5	8.06
Others	7	11.3

Table-3: Cognitive impairment (MMSE scores) (n=62)

Category	n	%
Normal cognition	35	56.5
Mild impairment	24	38.7
Moderate	3	4.8

Table-4: Anxiety (HAM-Ascores) (n=62)

Anxiety Severity	n	%
Mild impairment	18	29.0
Moderate	25	41.1
Severe	19	29.9

Table-5: Depression (HAM-Dscores) among depressed patients (n=24)

Depression Severity	n	%
Mild	3	12.5
Moderate	16	66.6
Severe	5	20.8

Table-6: Severity of psychosis (BPRS scores) (n=7)

Severity	n	%
Mild	4	6.4
Moderate	2	3.2
Severe	1	1.6

Table-7: MRI brain findings (n=62)

MRI Brain Findings	n	%
Cortical atrophy	44	70.9
Small vessel ischemic changes	36	58.0
White matter hyper intensities	28	45.1
Normal study	7	11.0

to the youngest age group of 61–70 years, and the number decreased progressively with advancing age, with the least number in the oldest age group of >80 years (8%). These findings are consistent with the studies by Nair et al.[1] and Seby et al.[3] Patel et al.,[10] which reported a higher prevalence of psychiatric morbidity among the younger segment of the geriatric population. The decrease in psychiatric morbidity with increasing age in these studies may be due to selective survival of healthier individuals in the oldest cohorts.

In our sample, the burden of psychiatric disorders was higher among females (61.2%), corroborating the findings of many Indian studies.[3,4,10] Females had a higher prevalence of mental disorders (77.6%) compared to males (42.4%) in the study conducted by Nair et al.[1] In difference to our study results, Soni et al.[12] have shown slight male predominance, with 55.9% males and 44.1% females, and the male-to-female ratio reported was 1.27:1. where as the overall number of males and females was almost equal (male 50.9%; female 49.1%) in the study by Seby et al.[3] The higher representation of female patients in our study suggests that elderly women may experience more psychiatric issues, possibly due to gender-specific psychosocial stressors such as widowhood, social isolation, and economic dependency.

The most common psychiatric disorder in our study was depression (38.7%), followed by generalized anxiety disorder (27.4%), somatoform disorder (14.5%), and bipolar affective disorder (8.06%). Depression is consistently reported as the most prevalent disorder among elderly populations worldwide. Indian studies have reported wide prevalence rates ranging from 6.0% to 55.2%.[1,3,8] Banerjee and MacDonald[9] reported a prevalence of depression of 26% among individuals aged 65 years and above. Similarly, Tiwari et al.[8] found an overall psychiatric morbidity of 23.7% in rural older adults, with mood (affective) disorders being the most common.

Educationally, more than two-thirds of our sample were illiterate, and less than one-third had primary education or higher. Similar findings were reported by Srivastava et al.[4], where 69.9% of participants had no formal education, 23.3% were literate, and only 6.8% had completed primary education. The strong correlation between marital status, educational attainment, and socioeconomic status indicates that those living alone, illiterate, and of lower middle-class background are more prone to develop psychiatric illness, possibly due to diminished social support. This underscores the importance of considering educational and socioeconomic factors while designing mental health interventions.

Regarding socioeconomic status, 77.4% of our

sample belonged to the middleclass, while 19.3% were from the lower class. According to the Modified B.G. Prasad socio-economic classification, the majority of the study population belonged to the lower middle class (28.9%) and middle class (23.1%) in the study by Nagoor et al.[6] Poor socioeconomic status may lead to financial insecurity, poorer nutrition, and limited healthcare access, which are important contributors to psychiatric morbidity.

Almost two-thirds of the participants were married (66.1%), while one-third (33.9%) were widowed. These findings are consistent with the community-based study by Nagoor et al.[6], which also found high rates of widowhood in the elderly, highlighting the need to consider the impact of spousal loss on mental health.

On HAM-A scoring, 41.1% of patients had moderate anxiety, followed by mild anxiety in 29% and severe anxiety in the remainder. These findings are consistent with the study conducted by Patel et al.[11], which reported anxiety in 18.7% of elderly participants. The elevated rates of both anxiety and depression in our study underscore the urgent need for targeted mental health interventions for the elderly.

Cognitive impairment was present in 38.7% of the study population, with 4.8% having Moderate impairment. Previous authors have reported cognitive impairment in elderly populations ranging from 12.6% to 50%.[1,4] Early detection of cognitive decline is critical for preventive and rehabilitative measures.

Among the participants diagnosed with depression based on the HAM-D scoring, 66.6% were classified as having moderate depression, while 20.8% were identified as having severe depression. The high prevalence of moderate-to-severe depression highlights the need for routine screening and timely intervention.

In the present study, MRI brain revealed cortical atrophy in 70.9%, small-vessel ischaemic changes in 58%, and white-matter hyper intensities in 45.1% of the elderly psychiatric patients, while only 11% had normal scans, Similarly, Taylor et al.[5] demonstrated a significant association between late-life depression and periventricular white-matter hyperintensities, supporting the concept of 'vascular depression', where in cerebrovascular changes contribute to mood and cognitive symptoms. The frequent presence of ischaemic changes together with white-matter lesions further highlights the role of vascular pathology in geriatric psychiatric morbidity and underlines the importance of routine neuroimaging for early detection, differential diagnosis and prognostication.

Conclusion

Geriatric psychiatric patients present with high rates of Depression, Anxiety and Cognitive impairment, often accompanied by structural brain changes detectable on MRI Brain. Comprehensive psycho-geriatric services integrating neuroimaging and mental health care are crucial to improve outcomes and quality of life for the elderly population. Overall, these findings emphasize the necessity for comprehensive psycho-geriatric services, particularly in rural settings, to address the cognitive, emotional, and behavioral challenges faced by the elderly. Strengthening psycho-geriatric services and incorporating neuroimaging into routine assessments are essential for improving outcomes and quality of life in this vulnerable population.

Limitations

Single-Centre study limits generalizability, Small sample size. **Financial Support**-There was no financial support provided to conduct this study **Conflict of Interest -** There was no conflict of interest.

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Original Article

Sociodemographic Profile and Psychiatric Co-morbidity in Patients with Irritable Bowel Syndrome (IBS): A Cross-Sectional Study at a Tertiary Care Centre

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ABSTRACT

Background: *Irritable Bowel Syndrome (IBS) is a chronic functional gastrointestinal disorder with no identifiable organic pathology. Globally affecting 8–17% of the population, IBS often coexists with psychiatric conditions, particularly anxiety and depression. Psychosocial stressors play a crucial role in exacerbating IBS symptoms.* ***Aim:*** *To assess the sociodemographic profile and psychiatric comorbidities in patients with IBS.* ***Materials and Methods:*** *A hospital-based cross-sectional study was conducted over 12 months in the Psychiatry Department of a tertiary care center in Rajasthan. Seventy patients diagnosed with IBS (ICD-10 criteria) were recruited using purposive sampling. Psychiatric comorbidities were assessed using HAM-A, HAM-D, and PSLES. Statistical analysis was performed using SPSS.* ***Results:*** *The majority were married (71.4%), males (58.6%), from joint families (62.9%) and lower-middle socio-economic class (64.3%). Psychiatric comorbidity was observed in 81.4%, with Generalized Anxiety Disorder (32.9%) and Major Depressive Disorder (25.7%) being most prevalent. Co-occurrence of anxiety and depression was found in 25.7%. Common stressors included family conflict (41.4%), illness in the family (30%), financial hardship (27.1%), and disturbed sleep (20%).* ***Conclusion:*** *A high prevalence of psychiatric comorbidity exists among IBS patients, predominantly anxiety and depression, often linked to psychosocial stressors. Early psychiatric evaluation and integrated care models are recommended for optimal IBS management.*

Keywords: *IBS, Psychiatric Comorbidity, Stress, Anxiety, Depression, Sociodemographic Factors*

Introduction

Irritable Bowel Syndrome (IBS) is a chronic, relapsing, and often debilitating functional gastrointestinal disorder, characterized by recurrent abdominal discomfort or pain, along with altered bowel habits, in the absence of any structural abnormalities.[1] It significantly impairs quality of life, productivity, and psychological well-being, often leading to frequent healthcare visits.[2] Epidemiological studies indicate that the global prevalence of IBS varies from 10–20%, with differences across countries and diagnostic criteria.[3] South Asian studies, including those from Iran and Bangladesh, suggest a substantial burden of IBS, affecting diverse demographic groups and frequently coexisting with functional dyspepsia.[4]

In particular, IBS has been reported with high frequency among medical students and young adults — a trend attributed to elevated academic pressure and lifestyle stress.[5] The pathogenesis of IBS is multifactorial, involving gastrointestinal motility disturbances, visceral hypersensitivity, altered gut

microbiota, low-grade inflammation, and, notably, gut-brain axis dysfunction.[6] Psychological stress and mental health issues, especially anxiety and depression, have been consistently linked with the onset and exacerbation of IBS symptoms.[7] Psychiatric comorbidities are highly prevalent in IBS populations. Multiple studies report that up to 60% of IBS patients meet criteria for at least one psychiatric disorder, particularly Generalized Anxiety Disorder, Major Depressive Disorder, and Somatization Disorder.[8] These psychiatric associations are not merely coincidental but often contribute to symptom severity.[9] Furthermore, early life stressors, such as adverse childhood experiences, have been shown to increase vulnerability to IBS through impaired emotional processing, often leading to heightened stress sensitivity and alexithymia.[10] The psychosocial model of IBS underscores how stress perception, coping strategies, and emotional expression affect gut function and symptom presentation[11] factors are also known to influence IBS symptoms. A starch- and sucrose-reduced diet has been found to improve gastrointestinal and inflammatory markers in IBS patients.[12] In addition, many patients turn to complementary and alternative medicine, such as Ayurveda and herbal remedies, to manage chronic symptoms.[13] Cultural variations also shape the perception, presentation, and management of IBS. In India, psychosomatic interpretations, stigma, and differing health beliefs may influence how patients report their symptoms and seek help.[14] Recent clinical frameworks advocate for a biopsychosocial approach in IBS care, emphasizing the need to assess psychiatric and lifestyle components alongside GI symptoms.[15]

Aims

To study the sociodemographic and clinical profile in patients with irritable bowel syndrome.

Objectives

1. To determine the sociodemographic and clinical profile in patients with IBS using Hamilton Anxiety Rating Scale (HAM-A), Hamilton Rating Scale for Depression (HAM-D) and Presumptive Stressful Life Events Scale (PSLES).
2. To correlate the clinical profile and psychiatric comorbidity.

Inclusion criteria

1. Patients who were diagnosed with IBS as per ICD-10 criteria.
2. IBS patients 18 years of age and above of any sex.
3. All IBS patients who were willing to give written informed consent.

Exclusion criteria

1. Any significant medical/surgical co-morbidities in IBS patients.

Materials and Methods

A cross-sectional observational study was conducted in the Department of Psychiatry at the tertiary care hospital over a period of **12 months**, with a **sample size of 70 patients** selected through **purposive sampling**. The study included patients attending the OPD and IPD services of the department. After obtaining approval from the Institutional Scientific and Ethical Committee, data were collected using a specially designed semi-structured proforma covering socio-demographic, clinical, and psychiatric co-morbidity details. All participants provided informed consent prior to inclusion in the study. Standardized assessment tools were used as per the study objectives, and diagnoses were made according to ICD-10 criteria. Statistical analysis was carried out under the guidance of a professional statistician following data collection.

Results

Table-1: Sociodemographic Profile of Participants (n = 70)

Variable	Category	n (%)
Age	18–30	29 (41.4%)
	31–60	37 (52.9%)
	>60	4 (5.7%)
Gender	Male	41 (58.6%)
	Female	29 (41.4%)
Marital Status	Married	50 (71.4%)
	Single	16 (22.9%)
	Widowed/Divorced	4 (5.7%)
Family Type	Joint	44 (62.9%)
	Nuclear	26 (37.1%)
Socioeconomic Status	Lower Middle	45 (64.3%)
	Upper Middle	17 (24.3%)
	Lower	8 (11.4%)
Education Level	Illiterate	6 (8.6%)
	Primary	14 (20%)
	Secondary	22 (31.4%)

	Higher Secondary	16 (22.9%)
	Graduate/ Postgraduate	12 (17.1%)
Occupation	Unemployed	9 (12.9%)
	Student	4 (5.7%)
	Homemaker	10 (14.3%)
	Skilled/Unskilled Laborer	18 (25.7%)
	Private/Govt. Job	21 (30%)
	Self-Employed	8 (11.4%)
Area of Residence	Urban	20 (28.6%)
	Semi-urban	12 (17.1%)
	Rural	38 (54.3%)

Table-2: Psychiatric Diagnoses (ICD-10 Based)

Diagnosis	n (%)
Generalized Anxiety Disorder	23 (32.9%)
Major Depressive Disorder	18 (25.7%)
Somatization Disorder	8 (11.4%)
Panic Disorder	6 (8.6%)
PTSD	4 (5.7%)
Anxiety + Depression	18 (25.7%)

Table-3: Common Stressful Life Events (PSLES)

Stressor	n (%)
Family Conflict	29 (41.4%)
Illness of Family Member	21 (30.0%)
Financial Problems	19 (27.1%)
Change in Sleep Habits	14 (20.0%)

Table-4: Severity Scores of HAM-A and HAM-D

Scale	Severity	n (%)
HAM-A	Mild (8–17)	6 (27.3%)
	Moderate (18–24)	17 (72.7%)
HAM-D	Mild (8–13)	6 (33.3%)
	Moderate (14–18)	12 (66.7%)

Discussion

The findings of this study reaffirm the strong link between IBS and psychiatric comorbidities, particularly anxiety and depression — a pattern previously highlighted in various global and Indian studies.[1] Most patients in our sample met diagnostic criteria for one or more psychiatric disorders, emphasizing that psychological distress is not just secondary to chronic illness but an integral component of IBS pathology.[2]

This aligns with data from metabolic and psychosocial studies indicating that IBS patients exhibit altered stress responses, mood disturbances, and maladaptive coping behaviors that amplify gastrointestinal symptoms.[3] In our study, a majority of patients reported significant life stressors, such as family conflicts, illness of close relatives, and financial difficulties — stressors previously found to correlate with increased symptom severity and healthcare-seeking.[4]

Psychiatric conditions such as Generalized Anxiety Disorder, Major Depressive Disorder, and Somatization Disorder were most prevalent. These disorders are known to intensify visceral sensitivity and pain perception, reinforcing the bidirectional relationship between the brain and the gut.[5] Such findings are consistent with reports that IBS patients with comorbid anxiety and depression often report more severe abdominal pain, bloating, and functional impairment.[6]

Somatization and panic symptoms also emerged in a substantial proportion of our participants. These observations are echoed in research showing that individuals with IBS frequently express psychological distress through physical complaints — a characteristic pattern in psychosomatic illness.[7] Notably, early trauma and emotional neglect have been associated with increased IBS vulnerability, mediated through emotional dysregulation and alexithymia.[8] Several patients in our sample reported difficulties in managing or expressing emotions, reinforcing the role of alexithymia and emotional avoidance, as also discussed in recent latent transition analyses.[9] Studies from Western and Asian populations similarly identify impaired emotional processing as a key feature in the clinical presentation of IBS.[10]

This study also confirmed that IBS is more prevalent among females, a trend that matches most previous reports. Biological, psychological, and sociocultural factors are believed to contribute to this gender difference, with women showing greater symptom reporting and help-seeking behaviors.[11] Additionally, cultural variations influence illness expression and treatment preferences in IBS, especially in collectivistic societies where psychosomatic presentations are common.[12] Regarding treatment practices, many IBS patients explore non-conventional therapies, including Ayurveda and

homeopathy. A single-center Italian survey showed widespread use of complementary and alternative medicine among IBS patients, often alongside allopathic care.[13] However, without concurrent psychiatric evaluation, such treatments may only provide partial relief.

Dietary interventions, particularly starch-and sucrose-restricted diets, have been shown to reduce symptom severity and inflammation in IBS patients, as demonstrated in multiple trials.[14] This underscores the importance of involving dietitians in IBS care, alongside mental health professionals and gastro-enterologists.

Ultimately, our findings reinforce the need for a comprehensive, biopsychosocial approach to IBS treatment. Psychiatric screening should be a routine component of IBS management, particularly in tertiary care settings where patients present with treatment-resistant or severe symptoms.[15] Early identification and targeted psychological intervention —such as cognitive-behavioral therapy or mind-fulness-based stress reduction — can improve both psychological and gastrointestinal outcomes.

Conclusion

IBS patients frequently present with psychiatric comorbidities, particularly anxiety and depression. These are significantly associated with stressful life events and sociodemographic vulnerabilities. Screen-ing and psychiatric referrals in gastroenterology settings are crucial for comprehensive care.

Limitations

A larger sample is needed for this study with a prospective assessment to generalize the findings. The sample may be gathered from more than one centre.

Financial Support

There was no financial support provided to conduct this study.

Conflict of Interest

There was no conflict of interest.

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Original Article

Sexual Dysfunction in Infertile Women Seeking Treatment in an Infertility Clinic at a Tertiary Care Hospital

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ABSTRACT

Background: *Sexual dysfunction is a common but often neglected concern among women undergoing infertility treatment. The emotional distress associated with infertility, combined with the physical burden of fertility interventions, contributes to impaired sexual function across multiple domains.* ***Aim:*** *To determine the prevalence and domain-specific patterns of sexual dysfunction in infertile women attending a tertiary care infertility clinic using the Female Sexual Function Index (FSFI).* ***Methods:*** *A cross-sectional descriptive study was conducted at PESIMSR, Kuppam, involving 94 women aged 18–45 years with infertility >12 months. Data were collected using a structured proforma and the FSFI questionnaire. Analysis was performed in SPSS v23.0.* ***Results:*** *Sexual dysfunction was present in 65.96% of participants. The most commonly affected domains were lubrication (77.66%), orgasm (76.6%), and satisfaction (72.34%). Logistic regression identified orgasm (OR=0.068) and satisfaction (OR=0.089) as the strongest predictors.* ***Conclusion:*** *Sexual dysfunction is highly prevalent among infertile women and affects multiple dimensions of sexual functioning. Incorporating routine screening with validated tools like the FSFI into infertility care is essential.*

Keywords: *Infertility, Sexual dysfunction, FSFI, Orgasm, Lubrication, Reproductive health*

Introduction

Sexual health is an integral component of overall well-being, recognized by the World Health Organization as a state of physical, emotional, mental, and social well-being in relation to sexuality. Disruptions in sexual function can significantly impair quality of life, self-esteem, and relationship satisfaction, especially in women who often under report such concerns due to cultural taboos and societal pressures.[1]

Infertility, defined as the inability to conceive after one year of regular unprotected intercourse, affects approximately 10–15% of couples globally, with rates even higher in parts of South Asia.[2,3] In India, infertility carries substantial emotional and social consequences, particularly for women who face stigma, blame, and isolation. The psychological burden associated with infertility can lead to a cascade of issues including anxiety, depression, marital discord, and sexual dysfunction.[4]

The bidirectional relationship between infertility and sexual dysfunction is well documented. Women with infertility often experience decreased desire, arousal difficulties, and diminished orgasmic capacity — not only due to biological stressors such as hormonal treatments, but also due to performance pressure and emotional exhaustion.[5,6] Furthermore, the scheduling of sexual activity around ovulation strips intimacy of spontaneity, reducing satisfaction and deepening relational strain.

Despite these well-established associations, sexual health is rarely addressed during infertility

consultations in Indian clinical practice. Cultural norms, time constraints, and provider discomfort often prevent open discussions about sexual difficulties. As a result, dysfunction remains undiagnosed and untreated in most cases, even though it directly impacts the success and adherence to assisted reproductive technologies (ART).[7]

The Female Sexual Function Index (FSFI) is a validated, multidimensional tool designed to assess key domains of female sexual function: desire, arousal, lubrication, orgasm, satisfaction, and pain.[2] Its structured format allows for standardized evaluation and facilitates early detection of dysfunction in women undergoing infertility treatment.

Given the scarcity of Indian studies evaluating sexual function in infertile women using validated instruments like FSFI, the present study aims to assess the prevalence and pattern of sexual dysfunction in women seeking infertility care at a tertiary hospital.

Methodology

Study Design and Setting

We can put cross sectional study. Remove descriptive as we have done analytical part also study was conducted over a three-month period at the Department of Psychiatry, PESIMSR, Kuppam, in collaboration with the infertility clinic. The study was approved by the institutional ethics committee, and written informed consent was obtained from all participants.

Participants and Sampling

The study included Married aged between 18 and 45 years with a clinical diagnosis of Add definitions of primary and secondary infertility for a duration of at least 12 months. Participants were selected using purposive sampling from those attending the infertility outpatient department.

Inclusion Criteria

- Women aged 18–45 years.
- Infertility duration $\geq$ 12 months.
- Willingness to participate and provide informed consent.

Exclusion Criteria

- History of diagnosed psychiatric disorders.
- Use of medications known to affect sexual function.
- Inability to comprehend the study instruments.

Data Collection

After obtaining consent, participants were interviewed using a structured clinical proforma and self-report questionnaires. Interviews were conducted in a private setting ensuring confidentiality and comfort.

Study Tools

1. ***Semi-structured Proforma:*** Used to collect socio-demographic variables (age, education, occupation, socioeconomic status), clinical history (type and duration of infertility), and menstrual and sexual history.
2. ***Female Sexual Function Index (FSFI):*** The FSFI is a 19-item standardised self report questionnaire developed by Rosen et al.,[8] designed to assess sexual function across six domains: desire, arousal, lubrication, orgasm, satisfaction, and pain. Each domain contributes to the overall FSFI score, which ranges from 2 to 36. A cutoff score of $\leq$26.55 indicates clinically significant sexual dysfunction, as validated in diverse populations including Indian cohorts.[9] The FSFI has been widely adopted in clinical and research settings due to its robust reliability and sensitivity to change.

Statistical Analysis

All data were coded and analyzed using SPSS version 23.0. Descriptive statistics were used to summarize demographic and clinical variables. Frequencies and percentages were calculated for categorical variables, while means and standard deviations were reported for continuous variables. Chi-square tests were used to examine associations between FSFI domains and overall dysfunction. Multivariate logistic regression analysis was conducted to identify predictors of sexual dysfunction. A p-value of less than 0.05 was considered statistically significant.

Results

Demographic Profile

- Mean age: 30.14 ± 4.52 years

- Average duration of infertility: 33.04 ± 6.38 months
- Average years desiring children: 11.29 ± 5.58 years
- Prevalence of sexual dysfunction: 65.96% (62/94 n = 100)

A total of 94 infertile women were assessed, with a mean age of 30.14 ± 4.52 years. The average duration of infertility was 33.04 ± 6.38 months, and the mean number of years spent desiring children was 11.29 ± 5.58 years. The prevalence of sexual dysfunction, based on the FSFI cutoff score of ≤ 26.55, was 65.96% (n = 62).

Among the six FSFI domains, lubrication (91.5%), orgasm (88.3%), and arousal (82.0%) showed the highest prevalence of mild to moderate dysfunction. Severe dysfunction was most frequent in the orgasm domain (8.5%). Desire was also commonly affected, with 73.4% of women reporting at least mild impairment. Satisfaction and pain were affected in 70.2% of participants. Normal scores were lowest for lubrication (4.3%) and highest for satisfaction and pain (29.8%), indicating substantial impairment across multiple dimensions.

Domain-wise analysis revealed high prevalence and severity of sexual dysfunction across all FSFI

Table-1: FSFI domain severity distribution

Domain	Severe (%)	Moderate (%)	Mild (%)	Normal (%)
Desire	3.2	22.3	51.1	23.4
Arousal	1.1	24.5	56.4	18.1
Lubrication	4.3	40.4	51.1	4.3
Orgasm	8.5	25.5	54.3	11.7
Satisfaction	3.2	31.9	35.1	29.8
Pain (Dyspareunia)	3.2	31.9	35.1	29.8

Table-2: Domain-wise Severity, Prevalence, and Statistical Significance of Sexual Dysfunction among Infertile Women

Domain	Severity	Domain-wise Severity, Prevalence, and Statistical Significance		Total	P value
		Absent No. (%)	Present No. (%)0		
Desire	Normal	12 (54.5)	10 (45.5)	22	0.025
	Mild	17 (35.4)	31 (64.6)	48	
	Moderate	3 (14.3)	18 (85.7)	21	
	Severe	0 (0)	3 (100)	3	
Arousal	Normal	12 (70.6)	5 (29.4)	17	0.003
	Mild	16 (30.2)	37 (69.8)	53	
	Moderate	4 (17.4)	19 (82.6)	23	
	Severe	0 (0)	1 (100)	1	
Lubrication	Normal	3 (75.0)	1 (25.0)	4	<0.001
	Mild	26 (54.2)	22 (45.8)	48	
	Moderate	3 (7.9)	35 (92.1)	38	
	Severe	0 (0)	4 (100)	4	
Orgasm	Normal	10 (90.9)	1 (9.1)	11	<0.001
	Mild	22 (43.1)	29 (56.9)	51	
	Moderate	0 (0)	24 (100)	24	
	Severe	0 (0)	8 (100)	8	
Satisfaction	Normal	13 (86.7)	2 (13.3)	15	<0.001
	Mild	17 (39.5)	26 (60.5)	43	
	Moderate	2 (6.5)	29 (93.5)	31	
	Severe	0 (0)	5 (100)	5	
Pain	Normal	24 (85.7)	4 (14.3)	28	<0.001
	Mild	7 (21.2)	26 (78.8)	33	
	Moderate	1 (3.3)	29 (96.7)	30	
	Severe	0 (0)	3 (100)	3	

domains. Moderate to severe dysfunction was most prominent in the lubrication domain, where 92.1% of those with moderate issues and 100% with severe issues reported overall sexual dysfunction. Orgasm and satisfaction domains also showed a strong association, with all participants reporting moderate and severe dysfunction experiencing global FSD. Chi-square analysis demonstrated statistically significant associations for all domains (*p* below 0.05), with the strongest associations observed for lubrication, orgasm, satisfaction, and paindomains (*p* below 0.001). This emphasizes the multidimensional impact of sexual dysfunction among infertile women.Chi-square association between domains and global dysfunction.

Chi-square analysis demonstrated statistically significant associations between multiple domains of sexual function and the presence of global sexual dysfunction (FSD). Specifically, significant relationships were observed for desire (p = 0.020), arousal (p below 0.001), orgasm (p below 0.001), satisfaction (p below 0.001), and pain (p below 0.001). Among these, the orgasm, satisfaction, and pain domains exhibited the strongest statistical significance, indicating their potential as key predictors of overall dysfunction. While lubrication approached significance (p = 0.077), age was not significantly associated with global FSD (p = 0.389), suggesting that sexual dysfunction in this population may not be age dependent. These findings underscore the

Table-3: Chi-Square Association Between Sexual Function Domains and Global Female Sexual Dysfunction (FSD)

Domain	FSD Total score		Total	P value
	Absent No. (%)	Present No. (%)		
Age <35 years	22 (37.3)	37 (62.7)	59	0.389
Age >35 years	10 (29.8)	25 (71.4)	35	
Desire Absent	12 (54.5)	10 (45.5)	22	0.020
Desire Present	20 (27.8)	52 (72.2)	72	
Arousal Absent	12 (70.6)	5 (29.4)	17	<0.001
Arousal Present	20 (26.0)	57 (74.0)	77	
Lubrication Absent	3 (75.0)	1 (25.0)	4	0.077
Lubrication Present	29 (32.2)	61 (67.8)	90	
Orgasm Absent	10 (90.9)	1 (9.1)	11	<0.001
Orgasm Present	22 (26.5)	61 (73.5)	83	
Satisfaction Absent	13 (86.7)	2 (13.3)	15	<0.001
Satisfaction Present	19 (24.1)	60 (75.9)	79	
Pain Absent	24 (85.7)	4 (14.3)	28	<0.001
Pain Present	8 (12.1)	58 (87.9)	66	

Table-4: Multivariate Logistic Regression Analysis of Predictors of Sexual Dysfunction

Variable	Category	Adjusted	Odds	Ratio	p-value
		Lower	Upper		
Age	<35 years (Ref)	1.000	–	–	–
	>35 years	0.805	0.796	0.155	4.171
Desire	Absent (Ref)	1.000	–	–	–
	Present	4.151	0.123	0.681	25.319
Arousal	Absent (Ref)	1.000	–	–	–
	Present	8.384	0.021	1.378	51.020
Lubrication	Absent (Ref)	1.000	–	–	–
	Present	1.847	0.835	0.006	586.580
Orgasm	Absent (Ref)	1.000	–	–	–
	Present	9.084	0.206	0.297	277.880
Satisfaction	Absent (Ref)	1.000	–	–	–
	Present	11.782	0.027	1.322	104.980
Pain	Absent (Ref)	1.000	–	–	–
	Present	30.067	¡0.001	6.178	146.322

multifactorial nature of FSD and support the need for comprehensive, domain-specific assess-ments in infertility care.

Multivariate logistic regression analysis identified significant associations between specific domains of sexual function and global sexual dysfunction (FSD). Notably, arousal (p = 0.021), satisfaction (p = 0.027), and pain (p below 0.001) emerged as independent predictors of FSD. Among these, the pain domain exhibited the strongest association, with an adjusted odds ratio (AOR) of 30.067, indicating a markedly increased risk of dysfunction. Satisfaction (AOR = 11.782) and arousal (AOR = 8.384) also demonstrated robust predictive value.

Although domains such as desire, orgasm, and lubrication showed elevated odds ratios, their associations did not reach statistical significance. Age was not found to be a significant factor (p = 0.796), reinforcing the view that sexual dysfunction in this cohort is more strongly linked to domain-specific impairments than demographic factors. These results highlight the critical role of individual FSFI domains in shaping global sexual health outcomes among infertile women.

Discussion

This study reaffirms the high burden of sexual dysfunction (FSD) among infertile women, with a prevalence of 65.96%, consistent with previous global estimates ranging from 40% to 80%.[10,11] The detailed domain-wise analysis revealed that lubrication (92.1%), orgasm (100%), and satisfaction (93.5%) were the most significantly affected domains among those reporting FSD. This multidimensional impairment aligns with existing literature that underscores the complex interplay between infertility, psychological stress, and sexual health.[4,6]

The association between physiological interventions — such as ovulation induction or assisted reproductive technologies (ART) — and sexual dysfunction is well established. Lubrication and orgasm difficulties in particular may result from hormonal fluctuations and treatment related anxiety.[5] Our data corroborate this, showing that dysfunction in these domains not only had high prevalence but also strong statistical significance in both chi-square and regression models.

Chi-square analysis demonstrated that all FSFI domains were significantly associated with global FSD, with orgasm, satisfaction, and pain showing the highest x^2 values (p below 0.001). This supports the notion that sexual impairment is multifactorial and domain-specific, with each dimension contributing uniquely to the overall dysfunction.

Further, multivariate logistic regression identified pain (AOR = 30.07), satisfaction (AOR = 11.78), and arousal (AOR = 8.38) as the strongest independent predictors of global FSD. This is consistent with studies highlighting emotional fulfilment and physical comfort as pivotal components of sexual well-being.[1,14] Interestingly, domains such as desire and lubrication, although affected, did not independently predict dysfunction, suggesting that subjective satisfaction and physical discomfort may play more central roles in sexual health during infertility.

Cultural factors remain critical in interpreting these findings. In many South Asian societies, including India, conversations around female sexuality are stigmatized, leading to underreporting and internalised distress.[11] Women may attribute their infertility to personal failure, compounding feelings of guilt and diminishing sexual expression.[4] This psychological burden further exacerbates dysfunction, creating a feedback loop of relational strain and diminished sexual response.

In our cohort, satisfaction and pain emerged as especially influential, with over 75% of women in those domains reporting global dysfunction. This underscores the relational impact of infertility—many participants reported reduced intimacy and partner withdrawal, echoing the findings of Bancroft et al,[1] who noted that sexual satisfaction is closely tied to emotional closeness and partner responsiveness.

Despite the known benefits, tools like the Female Sexual Function Index (FSFI) are underutilised in Indian infertility clinics. Our findings affirm its utility in both diagnosis and treatment planning. The FSFI has been extensively validated across diverse populations and languages,[8,9] making it an ideal tool for routine use in reproductive health settings.

Importantly, improving sexual health may also enhance fertility outcomes. Boivin et al[3] found that sexual well-being positively influences adherence to ART protocols and reduces dropout rates—an essential consideration in South Asian contexts

where treatment fatigue and emotional burnout are common[7].

Conclusion

This study highlights the high prevalence and multidimensional nature of female sexual dysfunction (FSD) among women undergoing infertility treatment. Using the FSFI, significant impairments were identified across all six domains, with lubrication, orgasm, satisfaction, and pain showing the strongest associations with global dysfunction.

Multivariate analysis revealed that satisfaction, pain, and arousal were the most robust independent predictors of FSD, underscoring the need to address both physiological and psychological dimensions of sexual health in infertility care. Although desire and lubrication were commonly affected, their predictive value was comparatively lower, suggesting a complex interplay between subjective and relational factors.

Given the cultural stigma surrounding female sexuality, especially in Indian settings, routine screening for sexual dysfunction using validated tools like the FSFI is essential. A multidisciplinary, patient-centered approach—incorporating gynaecological, psychiatric, and counseling services—may enhance both sexual health and fertility outcomes, ultimately improving the quality of life for women navigating infertility.

Aim and Objective

This research is expected to highlight the need for routine sexual health screening in fertility clinics and foster a more holistic, patient-centered approach to infertility management.

Limitations

- ***Single-center study:*** The study was conducted at a single tertiary care hospital in a semi-urban setting, which may limit the generalisability of findings to other regions or healthcare settings.
- ***Small sample size:*** With only 94 participants, the study may be underpowered to detect subtle differences across sociodemographic or clinical subgroups.
- ***Cross-sectional design:*** Causality between infertility and sexual dysfunction cannot be inferred due to the observational, cross-sectional nature of the study.
- ***Self-reported data:*** The use of self-report questionnaires like the FSFI may introduce social desirability bias, especially in conservative cultural settings where sexual issues are stigmatized.
- ***Partner and relational factors unassessed:*** The study did not assess the sexual function of partners or relationship satisfaction, which are important components of sexual health.
- ***Psychosocial and emotional domains underexplored:*** Although psychological stress likely contributes to dysfunction, the study did not formally measure stress, anxiety, or depression.

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Original Article

Exploring Quality of Life and Caregiver Burden in Obsessive-Compulsive Disorder: A Cross-Sectional Observational Study

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ABSTRACT

Background: *Obsessive-Compulsive Disorder (OCD) is a chronic psychiatric illness that significantly impairs quality of life (QoL) in affected individuals and imposes a substantial psychological and emotional burden on caregivers.* ***Material & Methods****: This hospital-based, cross-sectional observational study assessed QoL among 50 patients diagnosed with OCD and caregiver burden among their corresponding caregivers at a tertiary care hospital in North India. The Yale-Brown Obsessive Compulsive Scale (Y-BOCS), WHOQOL-BREF, and Zarit Burden Interview (ZBI) were used to assess OCD severity, patient QoL, and caregiver burden, respectively. Multivariate regression analyses revealed that OCD severity and lower educational attainment were significant predictors of reduced QoL and increased caregiver burden.* ***Results****: Findings suggest the need for integrated patient-caregiver mental health interventions in chronic psychiatric conditions like OCD.* ***Conclusions****: The findings underscore the need for holistic care strategies targeting both patients and caregivers to reduce long-term disability and improve quality of life.*

Keywords: *Obsessive-Compulsive Disorder, Quality of Life, Caregiver Burden.*

Introduction

Obsessive-Compulsive Disorder (OCD) is a chronic psychiatric illness characterized by persistent intrusive thoughts (obsessions) and repetitive behaviors (compulsions). Globally, the disorder affects approximately 1% - 3% of the population and significantly impacts emotional, social, and occupational functioning.[1] OCD is associated with marked psychological distress, diminished interpersonal relationships, and decreased health-related quality of life (HRQoL).[2]

Despite the availability of effective treatment options, such as selective serotonin reuptake inhibitors (SSRIs) and cognitive behavioral therapy (CBT), many patients experience persistent symptoms that impair their functioning.[3] Moreover, the illness exerts a significant burden on caregivers, especially in low-and middle-income countries where families are the primary source of support.[4]

Caregiver burden is defined as the physical, emotional, and financial strain experienced while caring for an individual with chronic illness. In the Indian context, cultural expectations and limited mental health infrastructure exacerbate this burden.[5] Understanding the link between patient functioning and caregiver stress is vital to develop effective psychosocial interventions. This study aims to assess QoL in OCD patients and the associated burden on their caregivers using validated psychometric tools in a tertiary care setting in New Delhi.

Materials and Methods

Study Design

This was a hospital-based, cross-sectional observational study conducted over 18 months at the Department of Psychiatry, VMMC and

Safdarjung Hospital, New Delhi. The objective was to examine the quality of life (QoL) in patients diagnosed with Obsessive-Compulsive Disorder (OCD) and the corresponding burden experienced by their primary caregivers.

Participants

The study sample comprised 50 patients diagnosed with OCD based on ICD-10 diagnostic criteria and their respective caregivers. Participants were recruited from the outpatient psychiatry department. Caregivers were identified as those providing primary, non-professional care to the patient for a minimum period of 12 months.

Inclusion and Exclusion Criteria

Patients were eligible if they

- Were aged between 18 and 60 years;
- Had a minimum illness duration of six months;
- Were diagnosed with OCD using ICD-10 criteria;
- Provided informed written consent.

Patients were excluded if they

- Had any comorbid psychotic disorder;
- Were suffering from a major physical illness that impaired functioning;
- Had cognitive impairment or lacked insight into their condition.

Caregivers were eligible if they

- Were aged 18 years or above;
- Had been cohabitating with the patient for at least 12 months;
- Were identified by the patient as the primary caregiver;
- Provided informed written consent.

Caregivers were excluded if they

- Had any diagnosed psychiatric illness or major medical condition;
- Were unable to participate in interviews or assessments.

Instruments Used

Yale-Brown Obsessive Compulsive Scale (Y-BOCS): This clinician-administered scale was used to assess the severity of OCD symptoms. It comprises 10 items rated on a scale from 0 (no symptoms) to 4 (extreme symptoms), with total scores ranging from 0 to 40.

WHOQOL-BREF: The 26-item World Health Organization Quality of Life instrument assesses subjective QoL across four domains: physical, psychological, social relationships, and environment. Each domain is scored on a scale from 0 to 100, with higher scores reflecting better perceived quality of life.

Zarit Burden Interview (ZBI): This 22-item instrument evaluates the level of burden experienced by caregivers. Scores range from 0 to 88, with higher scores indicating greater perceived burden.

Procedure

Following ethical approval by the institutional ethics committee, participants were recruited through purposive sampling. After obtaining informed consent, trained clinical psychologists and psychiatry residents conducted structured interviews in Hindi or English, as per participant preference. Demographic, clinical, and psychometric data were recorded using standardized forms.

Statistical Analysis

Data were entered into SPSS version 25.0 and analysed using appropriate statistical tests. Descriptive statistics were computed for demographic and clinical variables. Multivariate linear regression was performed to identify predictors of QoL and caregiver burden. Results were reported as standardized beta coefficients with 95% confidence intervals and p-values.

Results

This section presents the findings on the sociodemographic and clinical profiles of patient-caregiver dyads, mean domain scores on standardized instruments, and the regression analyses conducted to determine predictors of quality of life (QoL) and caregiver burden.

This table summarizes the demographic and clinical features of the 50 OCD patients included in the study. The majority of participants were aged 18–30 years (52%), with a greater proportion being male (56%). Most patients had educational attainment up to high school (48%) and were unemployed (68%).

Table 2 shows that clinical severity, 46% had

Table-1. Sociodemographic and Clinical Profile of Participants (N = 50)

Variable	Category	n (%)
Age (years)	18–30	26 (52%)
	31–40	13 (26%)
	41–50	11 (22%)
Gender	Male	28 (56%)
	Female	22 (44%)
Education	Graduate or higher	19 (38%)
	Up to high school	24 (48%)
	Illiterate	7 (14%)
Occupation	Unemployed	34 (68%)
	Employed	16 (32%)

Table-2. WHOQOL-BREF Domain and ZBI Scores on category basis

Variables	Category	n (%)
Caregiver Burden (ZBI)	Low	16 (32%)
	Mild to moderate	20 (40%)
	Moderate to severe	14 (28%)
OCD Severity (Y-BOCS)	Mild	11 (22%)
	Moderate	23 (46%)
	Severe	16 (32%)

moderate OCD, 32% had severe OCD, and 22% had mild symptoms. In terms of caregiver burden, 40% of caregivers reported mild to moderate levels of burden, followed by 28% experiencing moderate to severe burden.

Table 3 shows the mean scores, standard deviations, and 95% confidence intervals (CIs) for each WHOQOL-BREF domain and caregiver burden (ZBI). The psychological domain showed the lowest mean QoL score, reflecting significant emotional distress, while the environmental domain had the highest scores. Confidence intervals provide insight into the precision of the sample estimates.

Table 4 presents the results of a multiple linear regression analysis examining predictors of quality of life (QoL) among OCD patients. The analysis revealed that higher OCD severity (β = -0.48, p = .001) significantly predicted poorer QoL, indicating that patients with more severe symptoms reported worse overall well-being. Conversely, education level was positively associated with QoL (β = 0.29, p = .023), suggesting that greater educational attainment may buffer the functional impact of OCD. Age and gender were not statistically significant predictors. The overall model explained approximately 36% of the variance in QoL scores (R^2 = 0.36), with an adjusted R^2 of 0.31, indicating a moderately strong model fit.

Table-3. WHOQOL-BREF Domain and ZBI Scores

Domain	Mean ± SD	Lower (95% CI)	Upper (95% CI)
Physical Health	59.43 ± 20.12	53.71	65.15
Psychological Well-being	47.18 ± 17.78	41.96	52.40
Social Relationships	54.60 ± 23.46	48.01	61.19
Environmental Factors	65.57 ± 23.70	58.92	72.22
Caregiver Burden (ZBI)	42.60 ± 12.88	38.99	46.21

Table-4. Predictors of Patient Quality of Life (WHOQOL-BREF Total Score)

Predictor	B	SE	β	95% CI (Lower, Upper)	p-value
Y-BOCS Score	-1.12	0.28	-0.48	[-1.68, -0.56]	.001 **
Education Level	3.67	1.56	0.29	[0.58, 6.76]	.023 *
Age	-0.24	0.23	-0.11	[-0.70, 0.22]	.331
Gender (Male = 1)	0.94	1.22	0.08	[-1.51, 3.39]	.451

Table-5. Predictors of Caregiver Burden (ZBI Score)

Predictor	B	SE	β	95% CI (Lower, Upper)	p-value
Y-BOCS Score	1.35	0.40	0.42	[0.55, 2.15]	.002 **
Psychological QoL Score	-0.47	0.18	-0.31	[-0.83, -0.11]	.011 *
Patient Employment (Yes=1)	-3.65	1.72	-0.25	[-7.13, -0.17]	.039 *
Caregiver Age	0.23	0.22	0.13	[-0.22, 0.68]	.308

Table 5 details the predictors of caregiver burden based on regression analysis. Greater OCD severity in patients (β = 0.42, p = .002) was significantly associated with higher caregiver burden. Additionally, lower psychological QoL in patients was a significant negative predictor (β = -0.31, p = .011), underscoring the impact of patient emotional health on caregiver stress. Employment of the patient served as a protective factor, reducing burden (β = -0.25, p = .039). Caregiver age was not a significant contributor. The model accounted for 41% of the variance in caregiver burden ($R^2 = 0.41$), with an adjusted R^2 of 0.36, supporting its robustness.

Discussion

The results of the present study confirm that Obsessive-Compulsive Disorder (OCD) has a pervasive negative impact on the quality of life (QoL) of patients and significantly contributes to caregiver burden. Patients showed the lowest mean score in the psychological domain of the WHOQOL-BREF, indicating that emotional distress and cognitive impairments are central to the disease's disability, as noted by Fontenelle et al[6] and Moritz et al.[7] This aligns with international findings, including those by Subramaniam et al.[8] (2013), who demonstrated that OCD disproportionately affects emotional and psychological functioning.

Our regression findings reinforce previous literature showing that greater symptom severity (as measured by Y-BOCS) is associated with poorer QoL[2,9] (Eisen et al., 2006; Cicek et al., 2013). Education level also emerged as a protective factor, possibly due to greater health literacy, coping skills, and treatment adherence, as similarly described by Boyer et al[10] (2012). With respect to caregivers, a considerable proportion reported mild to moderate burden, with a smaller but notable group experiencing moderate to severe distress. These findings repeat those of Torres et al[4] who reported high psychological burden among Indian caregivers due to their central role in treatment and support. Importantly, psychological QoL in patients independently predicted caregiver burden, emphasizing that caregiver distress is closely linked to patient emotional suffering-a finding supported by Wu et al[11] and Albert et al.[3]

The protective role of patient employment in reducing caregiver burden also emerged in our data. Employed patients may require less instrumental care and show higher functioning, thereby reducing perceived burden. These findings advocate for the inclusion of occupational rehabilitation and family-centered interventions in OCD treatment plans.[12]

The main strengths of this study include the use of validated instruments, structured data collection, and focus on both patient and caregiver variables. Limitations include the relatively small sample size, single-site recruitment, and cross-sectional design, which limit the generalizability and causal inference. Future longitudinal studies involving larger, multi-center samples and intervention-based approaches are needed to validate and extend these findings.

This study confirmed that OCD significantly impairs patients' psychological well-being and places a considerable burden on caregivers. The psychological domain had the lowest mean QoL score, consistent with findings by Fontenelle et al.[6] Regression analysis demonstrated that greater OCD severity independently predicted poorer QoL and higher caregiver burden, in line with Subramaniam et al[8] and Eisen et al.[9]

Education level emerged as a protective factor, positively influencing QoL outcomes, possibly by enhancing insight and health-seeking behavior. Moreover, patient employment status was associated with reduced caregiver strain, suggesting that occupational engagement mitigates the caregiving load.[3]

Psychological QoL also significantly predicted caregiver burden, indicating a reciprocal relationship between the mental health of patients and caregivers. These findings support integrated family-based intervention models, especially in collectivist societies like India where caregiving roles are intense and prolonged.

Study limitations include its cross-sectional design, relatively small sample size, and single-center recruitment. Future longitudinal research is recommended to explore causality and temporal changes in burden.

Conclusion

OCD has far-reaching effects on both patients and their caregivers. Greater symptom severity and poor psychological QoL were associated with higher caregiver burden. The findings underscore the need for holistic care strategies targeting both patients

and caregivers to reduce long-term disability and improve quality of life.

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Psychomicrobiology

Probiotics in Schizophrenia: A Precision Approach to Modulating Inflammation and Microbiome Dysregulation

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Introduction

Schizophrenia is a complex and chronic psychiatric disorder characterised by positive symptoms like hallucinations, delusion and negative symptom like apathy, social withdrawal and cognitive impairment. Presence of these negative symptoms causes a gradual deterioration in cognitive performance and daily functioning, thereby intensifying both the individual hardships and the socioeconomic burden.

Emerging research implicates the microbiota–gut–brain axis (MGBA) a bidirectional communication network linking gut microbes, immune signalling, neural pathways, metabolic regulation and endocrine regulation in the pathogenesis of schizophrenia.[1] Alterations in gut microbial composition (dysbiosis, reduced microbial diversity, intestinal permeability metabolic disturbances including insulin resistance, dyslipidaemia and elevated systemic inflammatory markers such as C-reactive protein (CRP) and interleukin-6 (IL-6) have been linked to schizophrenia. These changes can affect neurodevelopment, neurotransmitter synthesis, and immune function, contributing to disease onset and progression.[2]

Live microbial interventions

Probiotics are living microorganisms which improve gut health by suppressing pathogen and interacting with host cells. Probiotics includes bacteria like bifidobacterium, lactobacillus and yeast like saccharomyces.

Prebiotics are a group of nutrients that are degraded by gut microbiota.[3]

A postbiotic is defined as a "preparation of in animate microorganisms and/or their components that confers a health benefit on the host.[4]

They have potential to modulate the MGBA and serve as adjunctive treatment in schizophrenia and may improve both immunity and inflammatory status.[5] The MGBA encompasses bidirectional signaling among intestinal microbiota and the central nervous system via enteric and autonomic nervous systems and immune mediators.[6] An imbalance of microbial composition has been consistently reported in schizophrenia. Probiotics decrease intestinal permeability by enhancing tight-junction integrity, inhibit proinflammatory cytokines (IL-6, TNF-α), and promote anti-inflammatory mediators such as IL-10 and suppress the release of CRP synthesis.[7,8] Probiotic fermentation of dietary fibers increases the generation of SCFAs such as butyrate, acetate, and propionate which exert potent immunomodulatory effects by downregulating the nuclear factor-κB (NF-κB) pathway in leukocytes and further Depletion of Lactobacillus and Bifidobacterium species may impair short-chain fatty acid (SCFA) production, increase gut permeability "leaky gut" and promote neuroinflammation.[9,10]

Modulation of the Hypothalamic–Pituitary–Adrenal (HPA) Axis

Probiotics help normalize dysregulation in cortisol secretion as well as glucocorticoid receptor sensitivity thereby counteracting immune activation and cytokine overproduction.[10] Through this neuroendocrine–immune modulation, probiotics contribute

to lower CRP levels and exert indirect anti-inflammatory effects.

Together, these pathways underscore the integrative anti-inflammatory potential of probiotics operating through metabolic, epithelial, neuroimmune, and neuroendocrine mechanisms that converge to cause CRP down-regulation. Probiotic supplementation significantly reduces CRP levels. This reduction in CRP supports the anti-inflammatory potential of probiotics in schizophrenia.[11]

Emerging evidence highlights the importance of inflammation as a key contributor to schizophrenia pathophysiology. Elevated levels of C-reactive protein (CRP) levels reflect systemic immune activation which is linked to cognitive and symptomatic severity.[12] Clinical and meta-analytic studies suggest that probiotics can mitigate this inflammatory burden, offering a potential adjunctive strategy through modulation of the microbiota–gut–brain axis (MGBA). Effect of probiotic in schizophrenia when compared with other inflammatory disorders, may reflect complex neuroimmune and the modulatory influence of micronutrient co-supplementation antipsychotic treatment.[13]

In a study done by Nagamine in the year 2021 administration of multistrain probiotic formulation (*Streptococcus faecalis*, *Bacillus mesentericus*, and *Clostridium butyricum*) led to improvements in insulin resistance, constipation, and overall inflammatory status among patients with schizophrenia. These effects were associated with restoration of the gut microbial balance particularly the Prevotella/ Bacteroides ratio, along with enhanced short-chain fatty acid (SCFA) production and stimulation of anti-inflammatory cytokine IL-10. Collectively, these changes suggest that probiotics can promote both metabolic and immune homeostasis through modulation of the microbiota–gut–brain axis (MGBA).[13,14]

Studies

Yang et al[15] critically re-evaluated Yang et al.'s meta-analysis on use of *Lactobacillus* and *Bifidobacterium* use in schizophrenia, noting high heterogeneity and limited clinical significance. Only three RCTs directly assessed PANSS outcomes, showing modest reductions — 7.4 points,[16] 1.4 points,[12] and 10 points[17] — none reaching the threshold for meaningful clinical improvement (PANSS-Positive and Negative Syndrome Scale (PANSS) it is a standardized tool used to assess the severity of schizophrenia symptoms by generating separate scores for positive, negative, and general psychopathology domains. PANSS < 58). Variations in patient groups, co-supplementation (vitamin D, selenium), and uncontrolled confounders (smoking, alcohol) further weakened the reliability. The authors concluded that while probiotics may produce small symptomatic benefits, current evidence remains insufficient to recommend their use in schizophrenia treatment.

Conclusion

Future investigations should prioritize the development of standardized probiotic formulations and conduct large, well-controlled randomized clinical trials to confirm their therapeutic efficacy in schizophrenia.[18,19] Effective biomarkers to address the diagnosis of schizophrenia might be of great importance yet remains challenging. Integrative approach targeting microbiomes including cytokines, metabolomics and transcriptomics would be essential to predict responsiveness to psychobiotics. Identifying specific patient subgroups likely to respond to probiotic therapythrough precision-based research could significantly advance personalized treatment strategies in schizophrenia. If validated through rigorous clinical evidence, probiotics may evolve into a safe, cost-effective, and biologically rational adjunct to conventional antipsychotic therapy, addressing both immune dysregulation and metabolic comorbidities while improving overall functional outcomes in schizophrenia.[15] The present literatures scarce and further clinical trials are essential to conclude specific microbial probiotic that could benefit schizophrenia through MGBA.[11]

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Newer Development

Digital Detox and Mental Health: An Integrated Review

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Introduction

Over the past decade, widespread access to smartphones and social-media platforms has profoundly altered daily routines and modes of interaction. Adults worldwide now spend more than seven hours each day using digital screens.[1] Although online connectivity enables rapid information sharing and social engagement, excessive or unregulated use has been linked to heightened anxiety, sleep disruption, depressive symptoms, and lower life satisfaction.[2]

This has led to growing interest in digital detoxing — defined as a conscious, time-bound reduction in digital or social-media activity — as a strategy to restore psychological balance and support healthier technology habits.[3] This review consolidates current evidence regarding the mental-health impacts of detox interventions, possible mechanisms of change, and practical limitations.

Methods

This narrative synthesis draws on systematic reviews, scoping reviews, and meta-analyses published from 2019 to 2025. Searches were conducted in PubMed, Scopus, and Science Direct using terms such as digital detox, screen-time reduction, and social-media break. Studies were included if they (a) examined intentional reduction or cessation of digital or social-media use, and (b) assessed psychological outcomes such as mood, anxiety, stress, well-being, or sleep quality.

Eleven relevant studies were identified, including four major reviews[4-7] and seven supplementary studies from 2020–2025.[1,2,8-12]

Results

Table-1. Overview of Major Reviews on Digital Detox and Mental Health (2019–2025)

Author & Year	Type of Review/Study	Sample & Scope	Main Findings	Limitations/Notes
Ramadhan et al. (2024)[4]	Systematic review + meta-analysis	10 studies (7 RCTs, 3 quasi-experimental), 2013–2023	Small but significant decrease in depressive symptoms (SMD = –0.29, p = 0.01); minimal impact on stress, life satisfaction, or general well-being	Very high heterogeneity (I^2 = 93%); brief interventions; predominantly student populations
Kamila & Arianti (2024)[5]	Systematic review	5 studies (2019–2024) involving active social-media users	Highly variable results; some reductions in anxiety and improved sleep; outcomes depend on motivations and usage patterns.	Few studies; heterogeneous designs; limited sample sizes
Anandpara et al. (2024)[6]	Narrative review	18 papers examining detox as a wellness trend	Participants noted enhanced self-regulation, mindfulness, and relief; others reported boredom or loneliness	Conceptual inconsistency, heavy reliance on self-report, limited quantitative measures
Setia et al. (2024)[7]	Scoping review	14 studies (2015–2024)	Improvements observed for depression and problematic internet use, especially among high-symptom users; moderators include age, gender, and intervention length	Predominantly cross-sectional data; lack of long-term follow-up; inconsistent definitions

Synthesis of Key Studies

- **Ramadhanet al[4]** analysed data from over 2,500 participants and found a small but statistically meaningful improvement in depressive symptoms, with negligible effects on other mental-health indicators.
- **Kamila & Arianti[5]** reported mixed outcomes, emphasising that user motivation and habitual use heavily influence results.
- **Anandparaet al[6]** highlighted that while digital breaks often feel restorative, some individuals experience reduced social connection, emphasising the need for balanced approaches.
- **Setiaet al[7]** found that those with greater baseline digital dependence benefit most, and contextual factors strongly shape outcomes.

Additional Empirical Evidence

- A 2025 RCT limiting daily smartphone use to under two hours for three weeks improved depressive symptoms, stress, and sleep among young adults.[1]
- A one-week hiatus from social media enhanced well-being largely through improvements in sleep quality.[8]
- A Thai pilot RCT showed substantial reductions in screen time and accompanying decreases in social-media-addiction scores[9].
- Pakistani university students who engaged in deliberate detox behaviours reported better mental-health outcomes[10].
- Gender-focused studies suggest that women may experience slightly greater well-being benefits, though evidence is mixed[11].
- Workplace-based interventions demonstrate promise for reducing burnout and technostress among remote employees.[12]

Discussion

Overall Effectiveness

Across studies, digital detox programmes consistently yield small improvements in depression, aligning with findings from meta-analytic evidence.[1,4,7] However, outcomes for stress, subjective well-being, and life satisfaction are not as reliable. The disparity in intervention types — ranging from brief 24-hour breaks to structured multi-week programmes—complicates direct comparisons.[4]

Potential Mechanisms

Several pathways may explain improvements observed:

- **Reduced social comparison:** Temporary disconnection reduces exposure to idealised online portrayals, decreasing negative affect.[5]
- **Lower cognitive overload:** Fewer alerts and multitasking demands diminish mental fatigue.[3]
- **Enhanced sleep:** Avoiding screens at night supports healthier sleep, a key mediator of mood improvement.[8]
- **Replenished attention:** Interrupting digital immersion may restore focus and self-control.[6]

Sleep quality, in particular, appears to play a central mediation role between detox interventions and improved mood.[8]

Moderating Factors

Benefits are more pronounced among:

- Younger individuals and heavy users with high baseline screen dependence.[7,9]
- Women, who may engage more actively with social platforms.[11]
- Participants supported by environments offering offline alternatives or structured guidanc.[6,12]

Intervention duration also matters: longer or more structured detox programmes typically show better adherence and outcomes.

Methodological Challenges

Current research faces several limitations:

- Most interventions are short (often fewer than four weeks).
- Heavy reliance on self-report introduces measurement bias.
- Few studies include follow-up assessments.
- Samples are dominated by Western, student populations, limiting cultural generalisation.[4,5]
- Standardised definitions of “digital detox”

and objective measures (e.g., device logs) are rarely used.

Practical Implications

A rigid, complete disconnection strategy is unlikely to suit everyone. More effective approaches emphasise moderation — such as limiting specific applications or setting designated technology-free periods.[6,7] Educational settings may benefit from integrating structured "digital-wellness weeks," while workplaces can reduce cognitive load by adjusting notification policies or encouraging mindful tech use.[12]

In rapidly digitising regions such as India, interventions should be culturally contextualised. Research centred on populations in Delhi and other Indian cities may illuminate unique socio-cultural influences shaping detox effectiveness.

Conclusion

Digital detoxing offers modest yet meaningful potential for supporting mental health, particularly by reducing depressive symptoms and improving sleep. Nonetheless, its broader impact on stress and subjective well-being remains inconsistent. Personalised, guided, and context-aware interventions appear more effective than strict abstinence-based approaches.

Future investigations should prioritise longitudinal designs, cross-cultural sampling, and exploration of cognitive and neuropsychological mechanisms underpinning technology-related fatigue and recovery. Rather than eliminating digital engagement entirely, the goal for modern societies may be cultivating intentional, balanced, and mindful technology use.

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Drug Review

Magnesium in Psychiatry : A Comprehensive Review of Therapeutic Potential

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Introduction

Oral nutritional supplements have demonstrated efficacy in improving clinical outcomes among hospitalized patients and are considered cost-effective interventions. In recent years, there has been a growing body of research within the emerging field of Nutritional Psychiatry, which explores the impact of dietary modifications on psychiatric conditions, particularly mood disorders, as well as the potential therapeutic role of individual micronutrient supplementation in individuals with mental health disorders.[1]

Source and Administration

Magnesium is the fourth most abundant mineral ion. Dietary intake is the primary source of magnesium for a healthy individual. Magnesium is found in a wide variety of foods. Good sources are considered whole grains, nuts, green-leafy vegetables, and legumes. Processed foods and refined grains are generally lower in magnesium.[2]

Magnesium is available in several salt forms, including magnesium oxide, citrate, sulfate, hydroxide, and gluconate. Treatment options include oral administration of magnesium salts or parenteral administration of magnesium sulfate via intravenous or intramuscular routes. Parenteral magnesium sulfate is typically reserved for cases of severe hypomagnesemia or for patients who are unable to tolerate or comply with oral therapy.

Pharmacokinetics and Bioavailability

Dietary magnesium is typically absorbed passively. The intestinal bioavailability of magnesium is negatively affected by the presence of fiber and phosphate.[3]

Magnesium is predominantly an intracellular cation, with only approximately 1% of the total body magnesium located in the extracellular compartment. In the serum, magnesium exists in three forms: ionized, protein-bound, and complexed with anions, with ionized magnesium representing the biologically active fraction.[4]

Normal serum blood magnesium levels are between 1.8 and 2.2 mg/dL. Magnesium intake is insufficient in a substantial proportion of the population, likely due to the widespread consumption of refined and processed foods. Additionally, the growing use of phosphate additives in the food supply may further contribute to inadequate magnesium status in the general population.[5]

Magnesium levels in the body are mainly maintained through renal reabsorption and gastrointestinal absorption. Negative magnesium balance can result from impaired absorption due to factors such as the use of proton pump inhibitors, malabsorptive disorders, or recurrent vomiting. Additionally, increased renal magnesium excretion may occur in the context of renal disease, uncontrolled diabetes mellitus and the use of certain medications, including loop diuretics and caffeine. Alcohol consumption and physiological stress also contribute to enhanced urinary magnesium loss.[6,7]

Mechanism of Action

Magnesium (Mg^2z), an essential micronutrient, plays a vital role in maintaining proper brain function by participating in neurotransmission and the

synthesis of membrane phospholipids. It is indispensable for the normal functioning of all human cells, including neurons, and is involved in a wide range of physiological processes. These include hundreds of enzymatic reactions, intracellular signaling, the myelination process, synapse formation and maintenance, as well as the regulation of serotonergic, dopaminergic and cholinergic neurotransmission.[8]

Emerging evidence also indicates that magnesium plays a role in neurogenesis and the maturation of newly generated neural cells. Specifically, magnesium has been shown to effectively enhance the proliferation of neural stem cells and enhance neurite outgrowth.[9]

Clinical Uses

I. Non-Psychiatric Uses:

- Magnesium is administered to patients with severe pre-eclampsia to prevent the onset of seizures and is used therapeutically in cases of eclampsia to control seizure activity.[10]
- As a tocolytic agent, magnesium can be utilized to inhibit uterine contractions and delay the progression of preterm labor.
- Over-the-counter laxatives, such as Milk of Magnesia, frequently contain magnesium due to its osmotic laxative properties.
- In the management of severe, life-threatening asthma exacerbations magnesium is recommended as adjunctive treatment. It facilitates bronchial smooth muscle relaxation, which can be beneficial for patients experiencing status asthmaticus.

II. Psychiatric Uses:

Magnesium represents a potentially novel adjunctive therapy in psychiatric disorders. It has been used in multiple clinical and experimental settings like anxiety disorders, migraine, sleep disorders, fibromyalgia and pain management.

Some of the psychiatric disorders where magnesium plays a therapeutic role are detailed below:

Depression

Magnesium is crucial for synaptic plasticity and plays a significant role in long-term potentiation of synaptic transmission, a mechanism closely associated with depression. It also functions as a cofactor for tryptophan hydroxylase, thereby facilitating serotonin synthesis and enhancing 5-HT A receptor binding, underscoring its supportive role within the serotonergic system. Furthermore, it has been demonstrated to stimulate vasopressin release during stress, which modulates emotional and behavioral responses.[11]

Sleep

Magnesium exerts antagonistic effects on N-methyl-D-aspartate (NMDA) receptors and agonistic actions on gamma-aminobutyric acid (GABA) receptors, contributing to its mild sedative properties. Consequently, magnesium plays a role in regulating sleep and reversing neuroendocrine alterations associated with sleep disturbances. Additionally, magnesium has been shown to upregulate the expression of brain-derived neurotrophic factor (BDNF), further supporting its neuroprotective and neuroplasticity-enhancing effects.

Suicidal Tendencies

Sowa-Kuæma et al.[12] reported a significant reduction in the concentrations of both magnesium and zinc in the hippocampal tissue of individuals who died by suicide. These findings suggest a disruption in the homeostasis of essential divalent cations within this critical brain region, which is heavily implicated in mood regulation and cognitive function.

Psychosis

Several studies suggest that magnesium plays a crucial role in mediating the efficacy of antipsychotic drugs. Both haloperidol and risperidone have been shown to increase intra-erythrocytic magnesium levels. Additionally, magnesium appears to be involved in the prevention and reversal of movement disorders associated with chronic use of typical antipsychotics.[13]

Migraine Prophylaxis

Studies suggest that people with migraines often have lower levels of magnesium and supplementation may help reduce the frequency and severity of attacks. The Canadian Headache Society guideline recommends using magnesium citrate at a dose of 24 mmol (600 mg) of elemental magnesium daily

for migraine prophylaxis.[14]

Adverse Effects

The serious and common adverse effects of using magnesium as a therapeutic agent is given in Table 1.

Table-1: Adverse effects of Magnesium Therapy[15]

Serious Adverse Effects	Common Adverse Effects
• Cardiovasucular collapse • Respiratory depression or paralysis • Hypothermia • Depressed cardiac function • Pulmonary edema	• Hypotension • Vasodilation • Impaired reflexes • Abdominal pain • Diarrhea • Flatulence • Nausia/Vomiting • Respiratory depression • Electrolyte disorders (hypocalcemia, hyperkalemia)

Contraindications

Contraindications for magnesium administration include impaired renal function, pregnancy and neuromuscular disorders. Assessing renal function prior to magnesium treatment is essential, as renal failure can reduce magnesium excretion and increase the risk of toxicity, necessitating close monitoring of magnesium levels in these patients. In individuals with neuromuscular diseases such as myasthenia gravis, magnesium use requires careful observation due to its inhibitory effect on acetylcholine release, which may exacerbate symptoms. Although magnesium is classified as pregnancy category D, limited human data suggest no expected risk of fetal or infant harm, but further studies are needed toconfirm its safety during pregnancy.

Conclusion

Magnesium plays a multifaceted role in psychiatry, influencing neurotransmission, synaptic plasticity, and neuroendocrine regulation. Its modulation of key receptors and involvement in neurogenesis highlight its therapeutic potential in mood disorders and neuropsychiatric conditions. Given its impact on treatment efficacy and neuroprotection, magnesium represents a promising adjunct in psychiatric care. However, further research is needed to fully elucidate its clinical applications.

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Drug Review

Melatonin: Clinical Applications

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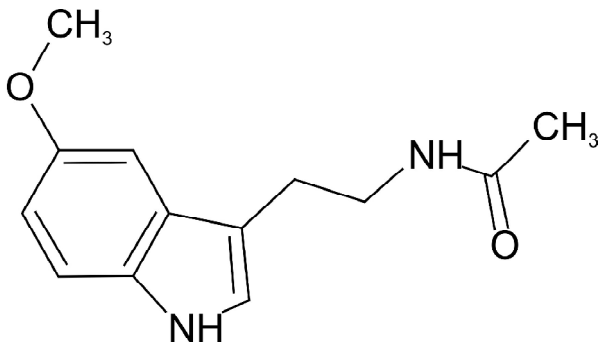
Introduction

Melatonin was first isolated by Lerner et al. in 1958 from bovine pineal glands. Endogenously, its secretion follows a distinct circadian rhythm, increasing after sunset, peaking between 2–4 a.m., and declining toward morning. The suprachiasmatic nucleus (SCN) of the hypothalamus governs this rhythm, translating light–dark information from the retina into melatonin synthesis and release.[1]

In recent years, melatonin has gained considerable attention not only as a sleep aid but also as a "cellular protector" due to its antioxidant and anti-inflammatory properties.[2] Synthetic melatonin supplements are widely available and are used therapeutically in a variety of sleep and circadian rhythm disorders, with ongoing studies exploring its potential in neurodegeneration, oncology, and metabolic disorders.[4]

CHEMICAL AND PHARMACOLOGICAL PROPERTIES



Melatonin, chemically known as N-acetyl-5-methoxytryptamine, has the molecular formula $C_{13}H_{16}N_2O_2$ and a molecular weight of 232.28 g/mol. It is an indoleamine derivative of tryptophan, classified as a chronobiotic, antioxidant, and neurohormone.[1]

Melatonin is synthesized from serotonin through a two-step enzymatic process involving arylalkylamine N-acetyltransferase (AANAT) and hydroxyindole-O-methyltransferase (HIOMT). Its synthesis is tightly regulated by light exposure; light inhibits melatonin production, while darkness stimulates it.

Mechanism of Action

Melatonin exerts its physiological effects primarily through activation of two G-protein-coupled receptors — MT_1 and MT_2— widely distributed in the brain and peripheral tissues.

MT_1 Receptors: Involved in promoting sleep onset and reducing neuronal firing in the SCN.

MT_2 Receptors: Regulate circadian rhythm phase shifts and sleep maintenance.

Additionally, melatonin interacts with MT_3 binding sites (quinone reductase 2) and exerts non-receptor-mediated antioxidant effects, directly scavenging reactive oxygen and nitrogen species. It also enhances the expression of endogenous antioxidant enzymes such as superoxide dismutase, glutathione peroxidase, and catalase.

Pharmacokinetics

Melatonin is rapidly absorbed following oral administration, with peak plasma levels reached within 30–60 minutes. Bioavailability is variable (10–56%) due to extensive first-pass hepatic metabolism. The half-life is short (30–50 minutes for immediate-release forms). Metabolism occurs predominantly via CYP1A2 in the liver, producing 6-hydroxymelatonin, which is excreted in urine as 6-sulfatoxymelatonin, a marker of endogenous secretion.

Modified-release formulations (2–5 mg) provide more sustained plasma concentrations, mimicking

the physiological nocturnal profile and improving sleep maintenance.[3]

Clinical Applications

1. *Primary and Secondary Insomnia:* Reduces sleep onset latency and improves sleep quality, particularly in elderly individuals.[3]
2. *Circadian Rhythm Sleep–Wake Disorders:* Useful for delayed sleep phase, jet lag, and shift work disorder.
3. *Pediatric Sleep Disorders:* Improves sleep in children with autism, ADHD, and neurodevelopmental disorders.
4. *Psychiatric Disorders:* Adjunctive role in depression, bipolar disorder, and seasonal affective disorder.
5. *Neurodegenerative Diseases:* Neuroprotective role in Alzheimer's and Parkinson's disease.
6. *Cancer:* Adjuvant role in reducing tumor progression and chemotherapy-induced toxicity.
7. *Metabolic and Cardiovascular Disorders*: Improves insulin sensitivity and regulates nocturnal blood pressure.
8. *Immune and Inflammatory Conditions*: Modulates cytokine balance and oxidative stress responses.

Dosage and Administration

Adults: 1–5 mg orally, 30–60 minutes before bedtime.
Elderly: 0.3–2 mg.
Children: 0.5–3 mg, titrated based on response.
Formulations: Immediate-release (sleep initiation), prolonged-release (sleep maintenance), sublingual and transdermal forms.

Adverse Effects

Melatonin is generally well tolerated. The common side effects include headache, dizziness, nausea, and vivid dreams. There is no evidence of dependence or tolerance even with long-term use.

Contraindications and Precautions

Melatonin is contraindicated in individuals with known hypersensitivity to the drug. It should be used with caution in patients with autoimmune disorders, epilepsy, and hepatic impairment. Its use should be avoided during pregnancy and lactation unless specifically prescribed by a healthcare professional.

Drug Interactions

Melatonin metabolism is influenced by cytochrome P450 enzyme modulators. CYP1A2 inhibitors such as fluvoxamine and ciprofloxacin can increase melatonin levels, potentially enhancing its sedative effects. Conversely, CYP1A2 inducers like smoking and carbamazepine may reduce melatonin efficacy by accelerating its metabolism. When used concurrently with benzodiazepines or opioids, melatonin may produce additive sedative effects, leading to increased drowsiness. Additionally, possible interactions with anticoagulants and hypoglycemic agents warrant caution, as melatonin may influence coagulation or glucose regulation.

Combination with Lactium

The combination of Lactium (150 mg), a bioactive peptide derived from milk casein hydrolysate, and Melatonin (5 mg), a pineal hormone that regulates circadian rhythm, provides a synergistic approach to stress reduction and sleep enhancement.[5] This fixed-dose formulation, is primarily indicated for stress-related sleep disturbances and mild anxiety with insomnia. Lactium (αS1-casein tryptic hydrolysate) exerts its effect through GABA-A receptor modulation, mimicking the calming action of GABA and reducing cortisol secretion, thereby lowering physiological stress responses. Clinical studies have demonstrated that Lactium decreases stress biomarkers and improves sleep quality. Melatonin, on the other hand, acts via MT1 and MT2 receptors to regulate the sleep–wake cycle, reduce sleep latency, and enhance sleep efficiency, particularly in cases of circadian rhythm disorders and insomnia.[1] The rationale for combining Lactium and Melatonin lies in their complementary mechanisms—Lactium modulates the hypothalamic–pituitary–adrenal (HPA) axis to alleviate stress, while Melatonin facilitates sleep initiation by correcting disrupted circadian rhythms. Together, they produce a synergistic anxiolytic and hypnotic effect without the risk of dependence or rebound insomnia. The combination is indicated for stress-related insomnia and anxiety, sleep disturbances due to lifestyle or occupational stress, jet lag, and as adjunctive therapy in mild mood or anxiety disorders.[6] The recommended dosage is one capsule containing Lactium 150

mg and Melatonin 5 mg, taken orally once daily, preferably 30–60 minutes before bedtime, typically for a duration of 2–4 weeks under medical supervision. Clinical studies report improvements in sleep onset latency and continuity within 7–10 days, along with significant reductions in stress and anxiety scores, without withdrawal or rebound effects upon discontinuation.[7] The formulation is generally well tolerated, with mild drowsiness, headache, or fatigue being the most common side effects. It is contraindicated in individuals with milk protein allergy, and caution is advised during pregnancy, lactation, or activities requiring alertness such as driving. Overall, the Lactium (150 mg) + Melatonin (5 mg) combination represents a safe, evidence-based, and non-habit-forming alternative for managing stress-related insomnia, promoting restorative sleep, and enhancing overall well-being with minimal side effects.

Recent Research and Future Directions

Recent studies highlight melatonin's role in mitochondrial protection, oxidative stress reduction, and immune modulation. It shows promise in COVID-19, oncology, neurodegeneration, and reproductive medicine. Novel analogues like ramelteon and agomelatine provide enhanced receptor selectivity and stability.

Conclusion

Melatonin is a multifaceted molecule bridging chronobiology, neuroendocrinology, and pharmacology. Its therapeutic scope extends beyond insomnia to neuroprotection, metabolic regulation, and inflammation control. Future research will further define its role as an adjunct in multiple systemic and psychiatric disorders.

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Forensic Psychiatry

Capacity Assessment — Medicolegal Aspects

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Introduction

The Mental Healthcare Act (MHCA), 2017, enacted in India, represents a paradigm shift from a custodial to a rights-based approach to mental healthcare.[1,2] Central to this reform is the recognition of autonomy and the presumption of capacity in individuals with mental illness. Capacity assessment determines whether a person can make specific decisions about treatment, admission, or other aspects of care.[3] Unlike previous legislations that emphasized guardianship and substituted decision-making, the MHCA promotes supported decision-making, ensuring that individuals are not deprived of their rights merely due to the presence of mental illness.[4]

Concept of Capacity under MHCA 2017

According to Section 4 of the MHCA, 2017, 'capacity to make mental healthcare and treatment decisions' refers to a person's ability to: understand the information relevant to making a decision, appreciate the consequences of a decision or lack thereof, and communicate the decision by any means.[1] The Act presumes capacity in all persons with mental illness unless proven otherwise. Capacity is decision-specific and time-specific.[5]

Principles of Capacity Assessment

Assessment of capacity must adhere to ethical and legal principles derived from both international conventions and the MHCA.[2,5]

1. *Presumption of capacity*: Every individual is assumed to possess capacity unless there is evidence to the contrary.
2. *Support for decision-making*: The person must be provided with information and assistance to enable decision-making, including simplified explanations or communication aids.
3. *Least restrictive approach:* Any interference with autonomy must be minimal and justified.
4. *Documentation:* The process and outcome of the assessment must be recorded thoroughly.

Assessment Process

Capacity assessment typically involves a structured clinical evaluation.[6] The key steps include explaining the decision, providing relevant information, assessing understanding, appreciation, reasoning, and communication, and recording findings. Tools like the MacArthur Competence Assessment Tool for Treatment (MacCAT-T) can aid evaluation.[7]

Role of the Nominated Representative

Under MHCA, if a person is found to lack capacity, decisions are made by the nominated representative (NR).[1,2] The NR is chosen by the individual in advance through an advance directive or, in its absence, appointed as per the priority defined in the Act. The NR's duty is to represent the person's preferences and rights.[5]

Medicolegal Aspects

- *Validity of Consent:* Consent obtained from a person lacking capacity is invalid and may render treatment unlawful, leading to potential charges of assault or negligence.[8]
- *Involuntary Admission*: Admission under Sections 89 and 90 requires documented assessment of capacity and justification for supported admission.[1]
- *Liability and Documentation:* Accurate documentation of findings provides legal

protection to clinicians; inadequate assessment can invite litigation.[3,5]

- *Advance Directives:* Respecting valid advance directives and confirming capacity at the time of making them are legal obligations under MHCA.[2]
- *Judicial Scrutiny:* Courts often rely on capacity documentation during disputes involving consent, coercion, or malpractice.[8]

Challenges in Implementation

Despite legal clarity, implementation faces challenges. Limited awareness among clinicians, cultural barriers, and resource constraints hinder proper assessment.[9,10] The law remains ambiguous in cases of fluctuating capacity and emergencies.[4,9]

Discussion

The MHCA aligns with international human rights frameworks, particularly the UN Convention on the Rights of Persons with Disabilities (UNCRPD).[11] By emphasizing supported decision-making, the Act promotes inclusion and autonomy. Regular training, standardized tools, and institutional policies are crucial.[9,10]

Conclusion

Capacity assessment is an essential clinical and legal requirement under the MHCA, 2017. It reinforces autonomy and safeguards rights. For psychiatrists, understanding and correctly implementing capacity assessment ensures ethical practice and legal protection.

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Case Report

Early-Onset Schizophrenia in Childhood: The Interaction of Family Dynamics, Cultural Barriers, and Diagnostic Challenges

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Introduction

Early-onset schizophrenia, which is defined as an onset before the age of 18, is one of the most severe childhood psychiatric disorders and is associated with chronic deterioration in cognition, affect, and social functioning.The rarity of the condition and its symptomatic overlap with developmental and behavioural disorders often lead to delayed or inaccurate diagnosis. Beyond the biological vulnerability, the course of early-onset schizophrenia is heavily influenced by familial expressed emotion and sociocultural interpretations of illness.[1,2] Children with psychotic disorders in societies such as India, where supernatural and faith-based understandings about health and illness often exist alongside biomedical ones, often face long and difficult routes to securing adequate care.[3,4]

The present case explores the developmental and psychological course of a boy with early-onset schizophrenia, where family dynamics, cultural beliefs, and diagnostic uncertainty together shaped the course of the disorder and subsequent recovery.

Case Report

A.S., a 14-year-old male from Bhilwara, Rajasthan, was referred for evaluation on account of persistent aggression, irritability, sudden outbursts of emotion, and auditory and visual hallucinations. The onset of symptoms was insidious, starting at nine years of age, shortly after he sustained a minor forehead injury from a fall.Within weeks, his parents noticed unusual behaviour. These included frequent apologies, odd statements, and grandiose comments. What initially appeared as childish fantasy gradually turned into behavioural disorganisation, aggression, and social withdrawal.

Over the next few months, A.S. exhibited marked irritability, verbal abuse, and physical violence toward peers and neighbours. He developed a persistent belief that certain individuals were plotting against him and could *"enter his body through his chest."* These experiences triggered self-hitting behaviours and episodes of unprovoked laughter or crying. His academic performance deteriorated sharply, and his social interactions diminished.

There were consultations at various hospitals in Jaipur between 2019 and 2023, with fluctuating diagnoses between schizophrenia, ADHD, and PANDAS. This caused confusion and inconsistent management. Despite periods of medication compliance, there was little improvement. The situation worsened following the traumatic murder of his maternal grandmother in 2023, which intensified paranoid fears and emotional instability.

Family Dynamics

A.S. was the only child of parents who were both teachers by profession. The father could be described as calm, patient, and emotionally available, while the mother displayed irritability, hostility, and low frustration tolerance. Her disciplinary style was marked by physical punishment and critical remarks, especially when A.S. failed to follow instructions or exhibited disruptive behaviour. In this background, an atmosphere of high expressed emotion, one characterized by hostility and criticism, largely acted as an important factor in perpetuating his symptoms.

Psychological evaluation of parenting revealed very different styles. While the father's approach was authoritative, the mother's position was more authoritarian, which reflects the child's internal emotional splitting into punitive and supportive figures. In this context, A.S. fluctuated between fear, defiance, and dependence. His hallucinations and persecutory beliefs appeared to symbolically mirror this internal conflict and underlying ambivalence, as if the external persecutors represented internalised hostile objects. A conceptualization grounded in Melanie Klein's Object Relations Theory.

Cultural Barriers

Cultural interpretations further complicated the clinical picture. The family, distressed by a lack of improvement, turned to faith healers, night-long rituals, and spiritual interventions. These culturally meaningful practices delayed sustained psychiatric treatment and further acted to reinforce supernatural attributions for his symptoms. While the mother was more convinced by the religious interpretation, the father was more scientifically oriented and pressed for medical help. This tension reflected not only a difference in parental coping styles but also the broader cultural struggle between faith-based and biomedical worldviews in mental health care.

Diagnostic Challenges

From the outset, A.S.'s presentation straddled diagnostic boundaries. Early symptoms of hyperactivity, impulsivity, and distractibility led to consideration of ADHD. His behavioural disorganisation and fluctuating insight suggested psychosis. The transient improvements made after changes in medication confounded the diagnosis of the underlying disorder. Psychological testing clarified the issue: on the Mini-Mental Status Examination for Children, he achieved a score indicative of mild cognitive impairment, while the Vineland Social Maturity Scale produced a Social Quotient, consistent with borderline adaptive functioning. Projective assessments reflected a disturbed inner world. The Draw-A-Person Test revealed aggression, paranoid ideation, anxiety, and regressive tendencies. Poor reality testing and impulsivity were evident on the Rorschach, as well as emotional over-reactivity, with reliance on intellectualisation as a fragile defence. These findings support a psychotic process together with marked ego weakness and emotional immaturity rather than purely a behavioral or neurodevelopmental disorder.

According to the overall clinical and psychometric profile, a final diagnosis of Schizophrenia, unspecified type (F20.9) - Early-Onset Type was made as per ICD-10.[5] Pharmacological management with antipsychotic medication was initiated under psychiatric supervision. Psychoeducation sessions were simultaneously conducted with the parents to modify interactional patterns and reduce hostility. Over the next several months, A.S. demonstrated better affect regulation, reduced irritability, improved sleep, and partial reintegration into family activities.

Discussion

The complexity introduced by this case further extends the concept of familial, cultural, and diagnostic variables in early-onset schizophrenia. The development of the illness in this patient occurred at the core of biological vulnerability, as reflected in the family psychiatric history, further impacted by emotional turbulence within the home. Maternal hostility, a high expressed emotion, likely perpetuated emotional dysregulation and increased psychotic reactivity. In contrast, paternal emotional availability functioned as a protective factor, providing moments of emotional grounding and consistency.

The culturally informed reliance on faith healing led to a delay in psychiatric intervention, a pattern very common in the Indian context.[3,4] The culturally embedded practices, though reassuring at the emotional level, might reinforce psychotic attributions and delay medical help. Psycho-education helped bridge the gaps between faith and psychology by reframing illness understanding rather than challenging the cultural belief system. Diagnostic ambiguity represented the third pillar of complexity. The shifting diagnoses across years reflected the difficulty of defining schizophrenia in childhood, where symptoms often overlap with developmental or behavioural disorders.

Comprehensive psychological assessment was critical in deriving this diagnosis and pointing out the emotional immaturity of the child with schizophrenia, fragile ego boundaries, and poorly developed mediation between reality and fantasy. The mediation between reality and fantasy was achieved through the defence mechanism of sublimation,

allowing unacceptable impulses to be transformed into creative or socially acceptable expressions. The therapist encouraged the individual to express unconscious desires through creative activities, facilitating sublimation and balance between fantasy and reality. This helped the individual balance inner desires with external demands, promoting healthier emotional functioning.The partial recovery that is observed here after integrated treatment emphasizes the importance of contextualised, family-centred interventions. By altering the emotional climate at home and guiding parents to replace criticism with empathy, the therapeutic process made possible a more stable relational environment, an important prerequisite for symptom containment in childhood psychosis.

Fundamentally, this case illustrates that early-onset schizophrenia cannot be conceptualized reductively through a biological heuristic. It is, rather, created through dynamic interactions of family relationships, cultural meaning systems, and clinical interpretation. Early identification, ongoing family involvement, and culturally sensitive psychoeducation continue to form the central idea for better outcomes for these children.

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Case Report

Maintenance of Contamination Obsessions Through Environmental Triggers in a Hostel Setting: A Case Report

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Introduction

Obsessive Compulsive Disorder (OCD) is characterized by intrusive, distressing thoughts (obsessions) and repetitive behaviors or mental acts aimed at reducing anxiety (compulsions).[1] Contamination fears and washing compulsions are among the most common symptom themes. Literature indicates that stressful life events, perceived threat of contamination, and prolonged exposure to hygiene-focused environments during outbreaks such as COVID-19 act as precipitating factor, this report presents a case of a young female who developed contamination-related OCD symptoms during the pandemic, later worsened by environmental triggers in a residential institute setting.[2]

Case Report

A 21-year-old unmarried female undergraduate student from a middle socio-economic background presented to the Psychiatry Department with complaints of repeated hand washing, fear of contamination, distressing thoughts, inability to study, disturbed sleep, and reduced appetite for the past four years, with marked exacerbation in the last six months.

The onset of symptoms was traced to her 12th-grade board examinations during the COVID-19 pandemic, where the requirement to remove footwear before entering the examination hall was associated with an intense sensation of contamination, followed by increasing hand washing rituals lasting approximately one hour daily. The symptoms gradually progressed in severity after she moved to a residential college for undergraduate studies. Over the next two years, the patient developed highly ritualized cleaning routines including daily bathing for one hour, handwashing for 1–2 hours using antiseptic solutions, restricted use of shared bathrooms except at fixed times, and cleaning her hostel room independently despite available housekeeping services.

Her symptoms intensified following an incident where the hostel cleaning staff handled her personal items, leading to heightened fear, hypervigilance, and active avoidance of contact with the cleaners ("Baiji"). Thereafter, she experienced distress on hearing their names or encountering them in campus premises, further impairing functioning. Her academic performance declined significantly as she avoided touching books due to fear of contamination, and her social interactions reduced because of rigid self-imposed behavioral routines.

The patient first sought psychiatric treatment in July 2023 and was diagnosed with OCD. She reported significant reduction in compulsions after partial adherence to the prescribed medication but discontinued treatment prematurely due to financial constraints. Family history was notable for parental interpersonal conflict and maternal tobacco use. MSE revealed mood subjectively anxious and objectively dysphoric, with restricted affect. Thought content revealed obsessions of contamination and compulsive washing. Judgment was intact with Insight being Grade III. Based on the symptoms, course, and clinical evaluation, a diagnosis of Obsessive–Compulsive Disorder, Contamination subtype (ICD-10: F42.2)[4] was made.

Understanding the case through Salkovskis' Cognitive Model of OCD, where intrusive thoughts,

distorted beliefs, and neutralizing behaviors maintain symptoms. A high-achieving student with strong responsibility and fear of failure, she developed contamination fears after being asked to remove her shoes during her 12th board exam. Intrusive thoughts like *"I'm contaminated"* and beliefs such as *"If I don't wash properly, something bad will happen"* led to excessive washing, avoidance, and hypervigilance. Misinterpreting these thoughts as real threats caused guilt, anxiety, and functional decline. Avoidance, rigid routines, and presence of distressful doubts from "Baiji" and touched objects in the environment reinforced the cycle, showing how early vulnerability, maladaptive beliefs, and ineffective coping sustained her OCD.

Discussion

A psychological evaluation was performed to explore the patient's personality traits, emotional dynamics, and cognitive styles that may contribute to the onset and persistence of her obsessive-compulsive symptoms. The patient was cooperative throughout the assessment, with sustained attention and comprehension.

In psychological assessments like CAQ emotional rigidity, perfectionism, and internalized distress, with obsessive-compulsive traits and significant depressive and anxiety symptoms requiring integrated therapeutic intervention. The patient's drawing in DAPT reveals obsessive-compulsive traits, depressive affect, and a fragile self-concept marked by emotional conflict, low self-worth, and internalized self-criticism. In Rorchach, she exhibits cognitive rigidity, emotional instability, and low self-worth, with distorted perceptions and strained relationships, functioning best in structured settings but struggling under stress and ambiguity.The patient presents with severe OCD symptoms (Y-BOCS: 24) marked by contamination obsessions and cleaning compulsions, alongside moderate depression (HAM-D: 20, BDI: 20) and mild to moderate anxiety (HAM-A: 23). Overall, these assessments indicate a chronic OCD condition compounded by depressive symptoms.

Conclusion

Treatment involved a structured CBT framework incorporating Exposure and Response Prevention (ERP), where the patient was gradually exposed to contamination cues while refraining from washing rituals.[3] A hierarchy was created to guide graded exposure, supported by grounding techniques, JPMR and activity scheduling to manage anxiety and improve daily engagement. Cognitive restructuring addressed maladaptive beliefs about cleanliness, threat, and rigid rules. Supportive therapy enhanced motivation, emotional regulation, and adherence to the treatment plan. Over time, the patient demonstrated reduced compulsive washing, greater tolerance to discomfort, and improved overall functioning, highlighting the effectiveness of a combined ERP-based CBT with supportive and behavioral interventions in contamination-focused OCD.

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Case Report

Unintentional Adolescent Opioid Dependence and Conversion Disorder – A Case Report

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Introduction

Adolescence represents a critical developmental stage characterized by heightened vulnerability, wherein emotional, psychological, and social stressors converge, giving rise to a complex array of challenges. Conversion Disorder, also referred to as Functional Neurological Symptom Disorder in DSM-5 or Dissociative Disorder as per ICD-10, is a condition in which psychological distress is expressed through neurological symptoms in the absence of an identifiable medical etiology. This phenomenon underscores the intricate relationship between psychological processes and somatic manifestations.

Similarly, opioid dependence in adolescents can emerge inadvertently, often initiated through the use of prescribed painkillers or injectables. Despite their therapeutic intent, prolonged exposure to opioids including medicinal drugs and injections may lead to physiological dependence, emotional dysregulation, and significant disruptions in behavioral patterns, further complicating the adolescent developmental trajectory. This case aimed to explore the psychological and behavioral interplay underlying conversion disorder and involuntary opioid dependence, in a 16-year-old female presented to the clinical psychology department.

Case Report

A 16-year-old female presented to the clinical psychology department with conversion disorder symptoms, including flank pain, burning micturition, and two years of dependence on painkiller injections, namely Tramadol. Despite multiple consultations and hospital admissions, no significant physiological findings were noted. She was misdiagnosed with tuberculosis and started on DOTS, which was later discontinued due to lack of improvement and physical deterioration.

Subsequently, she was treated symptomatically and started using Tramadol injections for pain relief, which gradually led to dependence. The patient's denial of stress and emotional vulnerability contributed to an increasing reliance on injections for perceived relief, creating a reinforcing cycle of craving and temporary comfort. She began craving the injections, using them almost thrice a week for more than a year which accounted for 100-150 injections. Gradually, she required them before meals to feel at ease from the pain. The dependence increased due to temporary relief and was comorbid with the usage of *"dantmanjan"*. Over time, this pattern fostered feelings of shame and guilt, further intensifying her psychological distress and dependence.

As per the ICD-10 criteria the clinical presentation was suggestive of Dissociative (Conversion) Disorder.[5] This case highlights the intricate psychological and behavioral dynamics of conversion disorder and opioid dependence, underscoring the need for integrative care approaches. Psychological evaluations, including the DSM-5 Somatic Symptom Scale (SSS-8), Drug Abuse Screening Test-10 (DAST-10), Sacks Sentence Completion Test (SSCT), Thematic Apperception Test (TAT), and Rorschach Inkblot Test (RIBT), indicated a significant dependence on non-alcoholic and non-tobacco substances, specifically Tramadol injections.

The evaluation revealed regressive tendencies, insecurities, and withdrawal coping mechanisms. Affect was poorly modulated with high emotional inhibition, contributing to internal tension and frustration. It revealed a personality pattern marked by low stress tolerance, situationally related distress, and limited adaptive capacity in coping with environmental demands. The patient appears to experience difficulty in perceiving and interpreting situations accurately under pressure, reflecting a degree of mediational impairment and emotional instability. There is also evidence of passivity and poor frustration tolerance, with a tendency to internalize difficulties rather than engage in active problem-solving, suggesting compromised coping resources and vulnerability to stress-related dysfunction.

Compounding to this is the burden of unwanted opioid dependence on tramadol injections, a remnant of earlier pain management interventions, which has entangled the patient in cycles of craving, withdrawal, and shame. Her condition depicted labile affect and emotional swings, disrupting interpersonal relationships and functioning.

Discussion

Comprehensive assessments yielded significant insights into the adolescent's psychological and emotional challenges. The persistence of symptoms despite medical interventions underscores the necessity of addressing underlying psychological factors to facilitate recovery and promote adaptive functioning. Psychoeducation for the family including the role of expressed emotions in maintaining the symptoms were explained to the family members, coupled with ongoing psychological interventions, played a crucial role in understanding the condition, fostering supportive environments, and addressing maladaptive behaviors.

Supportive therapy was provided to validate and reassure the painful emotions that were experienced. Activity scheduling was done and pleasurable activities were introduced in accordance with the patient's preferences. Later, Dialectical Behavior Therapy (DBT) techniques were introduced to help the patient manage emotional distress and reduce dependence on Tramadol. A pros and cons list was used to enhance awareness of the benefits of abstinence versus the consequences of continued use, promoting motivation for change. Distress tolerance skills were taught including the urge surfing technique, which encouraged her to observe and ride out cravings mindfully rather than act on them.

Additionally, emotion regulation strategies were introduced to help her identify, label, and manage negative emotions effectively, thereby improving her capacity to handle stress adaptively and reducing reliance on maladaptive coping behaviors. These interventions helped reduce stigma, improve coping strategies, and promote emotional regulation, leading to better long-term outcomes for the patient.

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Case Report

Efficacy of Relaxation Therapy in the Management of Generalised Anxiety Disorder: A Case Report

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Introduction

Generalized anxiety disorder is one of the most common mental disorders. Up to 20% of adults are affected by anxiety disorders each year. Generalized anxiety disorder produces fear, worry, and a constant feeling of being overwhelmed. Generalized anxiety disorder is characterized by persistent, excessive, and unrealistic worry about everyday things. This worry could be multifaceted, including financial, family, health, and future concerns. It is excessive, difficult to control, and is often accompanied by many nonspecific psychological and physical symptoms. Excessive worry is the central feature of generalized anxiety disorder.[1,2,3] Conventional management includes pharmacological agents such as selective serotonin reuptake inhibitors (SSRIs) and cognitive-behavioural therapy (CBT). However, relaxation-based interventions, including progressive muscle relaxation (PMR), deep breathing, and guided imagery, have shown efficacy as adjunctive or stand-alone treatments by reducing physiological arousal and enhancing coping mechanisms.[4]

Jacobson's Progressive Muscle Relaxation (PMR) is a relaxation technique that involves **systematically tensing and then relaxing** different muscle groups in the body. It helps reduce physical tension and mental stress, promoting a deep sense of calm.[6] Steps involved in PMR are Sit or lie down comfortably in a calm environment then

1. Take slow and deep breath inhale through your nose and exhale through your mouth to prepare your body.
2. Tense and relax each muscle group move from head to toe or toe to head which involve tensing muscles for 5-7 seconds and then release and relax for 15-20 seconds
3. End with deep breathing and stillness and stay relaxed for a few minutes and enjoy the feeling of calmness.

***Psychoeducation*: Psychoeducation** is a therapeutic process that involves providing individuals (and sometimes their families) with information and education about mental health conditions, psychological processes, and coping strategies. It helps people better understand their thoughts, emotions, and behaviours, and equips them with practical tools to manage challenges effectively.

The present case report is the clinical course of a patient with GAD successfully managed with relaxation therapy alone.

Case History

A 28-year-old female presented to the psychiatry outpatient department with complaints of excessive worry, restlessness, irritability, and difficulty in concentrating for the past eight months. The worries were disproportionate to actual events and interfered with her daily functioning. She also reported muscle tension, sleep disturbance, and episodic palpitations. There was no history of panic attacks, depressive episodes, substance use, or any significant medical illness. Family history was unremarkable.

On mental status examination, the patient appeared anxious and preoccupied with worries about work and family. Thought content revealed pervasive apprehensive expectations, but no delusions or perceptual disturbances. Cognitive functions were intact. A diagnosis of Generalised Anxiety Disorder (ICD-10: F41.1) was made.

The patient expressed reluctance to take pharmacotherapy and preferred a non-drug approach. She was initiated on a structured relaxation therapy program, which included the following components:

1. Progressive Muscle Relaxation (PMR) using Jacobson's technique (daily 20-minute sessions).
2. Deep breathing exercises (diaphragmatic breathing, 10 minutes twice daily).
3. Guided imagery and mindfulness meditation (10 minutes daily).
4. Psychoeducation regarding stress management, sleep hygiene, and healthy coping strategies.

Sessions were conducted weekly for four weeks, followed by fortnightly follow-up visits.

Outcome and Follow-Up

After two weeks of regular practice, the patient reported reduction in muscle tension and improved sleep. By the fourth week, subjective anxiety had reduced significantly, with fewer episodes of restlessness and worry. Hamilton Anxiety Rating Scale (HAM-A) was conducted scores reduced from 26 (moderate anxiety) at baseline to 12 (mild anxiety) at four weeks and 8 (minimal anxiety) at eight weeks. The patient reported improved concentration, better emotional regulation, and increased sense of control over her anxiety.

She continued practicing relaxation techniques daily and remained symptomatically stable at three-month follow-up without pharmacological support.

Discussion

This case demonstrates the therapeutic value of relaxation therapy as a non-pharmacological intervention in GAD. Relaxation techniques target the physiological components of anxiety by reducing sympathetic arousal and promoting parasympathetic dominance. Progressive muscle relaxation, in particular, enhances body awareness and reduces somatic tension associated with chronic anxiety.[4] Combined with deep breathing and guided imagery, these techniques foster mindfulness and cognitive quieting, which indirectly reduce excessive worry.[4]

Existing evidence supports in the efficacy of relaxation training in anxiety disorders. Meta-analyses have shown significant reductions in self-reported anxiety levels comparable to those achieved with CBT in mild to moderate cases. Furthermore, relaxation therapy is cost-effective, easily taught, and free from pharmacological side effects, making it particularly suitable for patients unwilling or unable to take medication.[5]

Conclusion

Relaxation therapy is an effective approach for reducing stress, anxiety, and physical tension while promoting overall well-being. Through techniques such as deep breathing, progressive muscle relaxation, guided imagery, and meditation, individuals can achieve a calmer state of mind and greater control over their emotional and physical responses. Regular practice enhances concentration, improves sleep, lowers blood pressure, and supports emotional balance. In essence, relaxation therapy empowers individuals to manage stress proactively and maintain a healthier, more peaceful lifestyle. The present case reinforces the importance of integrating relaxation techniques into routine clinical practice for anxiety management.

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Case Report

Very Early Onset Schizophrenia with Predominant Negative and Catatonic Features: A Case Report

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Introduction

Schizophrenia in children and adolescents represents a severe and disabling psychiatric illness that disrupts social, emotional, and cognitive development. Based on the age of onset, it is categorized as Early-Onset Schizophrenia (EOS) when onset occurs before 18 years, Childhood-Onset Schizophrenia (COS) when onset occurs between 13 and 18 years, and Very Early Onset Schizophrenia (VEOS) when onset occurs before 13 years of age. VEOS is rare, with an estimated prevalence of 1–5 per 10,000 and is associated with a chronic, deteriorating course and poor response to treatment.[1,2] The clinical presentation may be heterogeneous. Recognizing atypical, predominantly negative or catatonic presentations in childhood is critical for accurate diagnosis and management.

Case Report

Miss M, a 13-year-old girl child born of non-consanguineous marriage, fourth out of five born, educated up to 7th grade belonging to lower socio-economic background, previously sociable and performing well in academics, was brought by her mother with complaints of social withdrawal, mutism, and markedly reduced activity for the past three years. The illness began insidiously around the age of 10 years following a fear-provoking incident in form of patient when alone patient sensed an unknown woman watching her. Following this she became irritable and aggressive towards unknown people in neighborhood. In the early phase of illness, she occasionally muttered to herself and laughed without reason. At times, she expressed fearfulness and suspiciousness that someone is watching her and gradually became aggressive towards her family members. She was taken to a local hospital for the above-mentioned complaints where she was started on Tab. Sodium Valproate 1500 mg in divided doses along with Tab. Risperidone 2 mg twice a day. There was minimal to no response on these medications.

Gradually, over several months, her speech output decreased, and she started becoming withdrawn. She stopped engaging in household activities and refrained from going to school. She avoided interaction with family members and her emotional responsiveness diminished. Over time, she displayed marked negative symptoms in form of affective flattening, alogia, avolition, and anhedonia. She spent long hours sitting in one place, showing minimal interest in her surroundings and required assistance for self-care. The family members then took her to multiple faith healers with no relief in symptoms and the family members eventually stopped all medicines and treatment. In the later course, she became completely mute and did not respond to verbal instructions. Her mutism was persistent and non-volitional, consistent with catatonic features. There was no family history of psychiatric illness, substance use, or neurological disorder. Her developmental milestones were normal, and there was no history of perinatal complications, head injury, or seizures.

On examination, she appeared unkempt with poor eye contact and markedly reduced psychomotor activity. She was mute, emotionally indifferent, and unresponsive to verbal cues. Affect was flat, and volition markedly impaired. Cognitive testing could not be performed due to non-cooperation. Her medical and neurological work-up showed no abnormality with a normal CT scan of brain and normal EEG. Her routine blood investigations were within normal limits. Based on the age of onset, chronic course, and characteristic symptom pattern, a

diagnosis of Very Early Onset Schizophrenia (catatonic type) was made as per ICD-10 criteria.

The patient was started on tablet Lorazepam in divided doses along with an atypical antipsychotic – tablet Olanzapine up to 10 mg/day. Psychoeducation and supportive psychotherapy were provided to the family. Over the following weeks, there was gradual improvement in motor responsiveness and interaction. The patient's mutism and social interaction showed significant improvement.

Discussion

This case illustrates the developmental trajectory of schizophrenia in a child, beginning with brief positive psychotic symptoms and progressing to predominant negative and catatonic features. Catatonia, once considered rare in childhood, is now recognized as a severe manifestation of psychosis, especially in schizophrenia.[3] It often presents with mutism, immobility, posturing, and negativism, requiring urgent treatment to prevent complications. Benzodiazepines, particularly lorazepam, are considered first-line therapy and may yield rapid improvement in catatonic symptoms.[4] Atypical antipsychotics remain the cornerstone for managing underlying psychotic features and preventing relapse. The chronic and insidious course in this case, along with normal neurological findings, supports a primary psychotic disorder. Similar to findings by Tripathi et al,[5] VEOS tends to follow a fluctuating yet progressively deteriorating course, with poor functional recovery and persistence of negative symptoms.[5] Prognosis in such cases depends on early recognition, consistent pharmacological treatment, and comprehensive psychosocial interventions.

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