Journal for Research in Applied Sciences and Biotechnology

www.jrasb.com

ISSN: 2583-4053

Volume-2 Issue-6 || December 2023 || PP. 227-231

https://doi.org/10.55544/jrasb.2.6.32

Caffeine Levels and Dietary Intake in Smokers with Schizophrenia and Bipolar Disorder

Yash Gupta[1], Vishal Rai[2], Soban Khan[3], Reena Yadav[4], Nisha Bano[5] and Amrita Shukla[6]

[1,2,3,4,5.6]Department of Pharmacy, Dr. M.C. Saxena College of Pharmacy, Uttar Pradesh, INDIA.

[1]Corresponding Author: yashguptamehul@gmail.com

www.jrasb.com || Vol. 2 No. 6 (2023): December Issue

Received: 11-01-2024	**Revised:** 13-01-2024	**Accepted:** 15-01-2024

ABSTRACT

This study investigates the relationship between caffeine levels and dietary intake among individuals with schizophrenia and bipolar disorder who are smokers. The research aims to understand the patterns of caffeine consumption and dietary habits in this specific population. A sample of participants diagnosed with either schizophrenia or bipolar disorder and who smoke will be analyzed to assess their caffeine intake through self-reported measures and biological markers. Additionally, their dietary patterns, including the consumption of caffeine-containing products and nutritional choices, will be evaluated. The findings of this study aim to contribute to a better understanding of the dietary behaviors of individuals with mental health disorders, specifically focusing on caffeine intake among smokers with schizophrenia and bipolar disorder.

Keywords- schizophrenia, bipolar disorder, psychiatric, hypomanic.

I. INTRODUCTION

"Schizophrenia and bipolar disorder are severe mental health conditions characterized by significant disruptions in mood, cognition, and behavior, affecting millions of individuals globally (1). One common aspect among individuals with these disorders is the high prevalence of smoking, which often coexists with altered dietary habits and substance use (2).

Caffeine, a widely consumed psychostimulant, is present in various beverages and foods and is frequently used by individuals with mental health conditions due to its stimulant effects on alertness and mood (3). However, its consumption in excessive amounts or in certain populations, such as those with psychiatric disorders, may have varying implications on mental health symptoms and overall well-being (4).

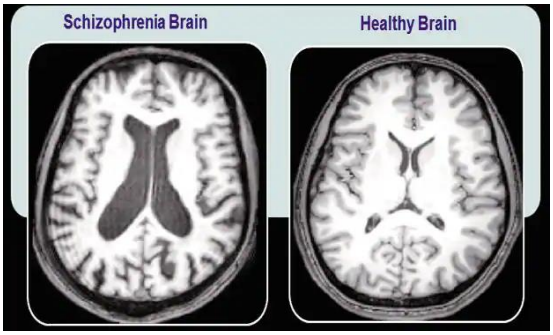

Figure 1: Schizophrenia v/s Healthy brain

Despite the prevalence of smoking and the potential impact of caffeine intake on mental health, limited research specifically focuses on the interplay between caffeine consumption and dietary patterns among smokers diagnosed with schizophrenia or bipolar disorder. Understanding the dietary behaviors and caffeine intake in this population is crucial for developing tailored interventions that address both smoking cessation and dietary modifications, potentially improving the

ISSN: 2583-4053
Volume-2 Issue-6 || December 2023 || PP. 227-231
https://doi.org/10.55544/jrasb.2.6.32

overall health outcomes of individuals grappling with these complex psychiatric conditions.

This study aims to fill this gap by examining the relationship between caffeine levels, dietary intake, and smoking habits among individuals diagnosed with schizophrenia or bipolar disorder who smoke. By investigating these interrelated factors, this research seeks to provide valuable insights into the intricate relationship between caffeine consumption, dietary patterns, and mental health among smokers with severe psychiatric disorders."

II. TYPES OF BIPOLAR DISORDER

Bipolar disorder encompasses several types, each characterized by varying patterns of mood episodes. The primary types include:

1. Bipolar I Disorder: This type involves manic episodes that last for at least seven days or are severe enough to require immediate hospital care. Depressive episodes typically accompany these manic episodes or occur separately.

2. Bipolar II Disorder: In this type, individuals experience at least one major depressive episode and at least one hypomanic episode. The hypomanic episodes are less severe than full-blown mania and do not typically lead to severe impairment or hospitalization.

3.Cyclothymic Disorder: This milder form of bipolar disorder involves recurrent episodes of hypomania and mild depression that last for at least two years (one year in children and adolescents). The symptoms are less severe compared to bipolar I or II but are chronic and may impact daily functioning.

These categories are outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), guiding clinicians in diagnosing and categorizing bipolar disorder based on the specific pattern, duration, and severity of mood episodes experienced by individuals (1).

.

III. TYPES OF SCHIZOPHRENIA

It is a complex mental disorder that presents with various symptoms. While the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) doesn't classify schizophrenia into distinct types, it does acknowledge different subtypes based on predominant symptomatology during the course of the illness. These subtypes are:

1.Paranoid Schizophrenia*:* Characterized by prominent delusions and hallucinations, often with themes of persecution or grandiosity. Individuals with this subtype may retain cognitive abilities and functioning better compared to other subtypes.

2. Disorganized Schizophrenia (Hebephrenic Schizophrenia): Involves disorganized thinking and behavior, alongside flat or inappropriate affect. Speech patterns and behavior may be incoherent or socially inappropriate.

3.Catatonic Schizophrenia: Exhibits motor disturbances ranging from immobility (catatonic stupor) to excessive, purposeless movement (catatonic excitement). Individuals may display unusual postures or mimicry of others' movements.

4. Residual Schizophrenia: Characterized by a history of at least one episode of schizophrenia with a reduction in prominent psychotic symptoms. However, negative symptoms like reduced emotional expression or motivation persist.

These subtypes were previously defined in earlier editions of the DSM, but the DSM-5 moved away from subcategorizing schizophrenia due to issues related to reliability and consistency in clinical practice.

Schizophrenia is diagnosed based on the presence of characteristic symptoms, their duration, and impact on social or occupational functioning, rather than on specific subtypes (1).

IV. HOW CAFFEINE AFFECT IN BIPOLAR DISORDER AND SCHIZOPHRENIA

Caffeine's impact on bipolar disorder and schizophrenia is complex and can vary among individuals with these conditions.

1. Bipolar Disorder:

- Mood effects: Caffeine, a stimulant, can potentially induce manic or hypomanic symptoms due to its impact on increasing arousal and agitation in susceptible individuals (5).
- Sleep disruption: Caffeine can interfere with sleep patterns, exacerbating sleep disturbances often observed in bipolar disorder, which in turn may trigger mood episodes (6).
- Interference with medication: Caffeine might interact with medications commonly prescribed for bipolar disorder, potentially affecting their efficacy or exacerbating side effects (7).

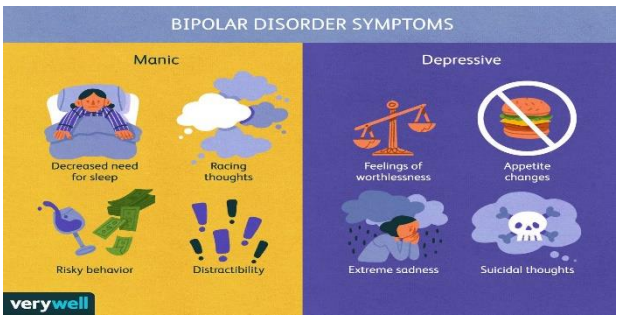

Figure 2: Bipolar disorder

2. Schizophrenia:

- Psychotic symptoms: Caffeine, being a central nervous system stimulant, can exacerbate psychotic symptoms such as hallucinations or paranoia in individuals with schizophrenia (8).

Journal for Research in Applied Sciences and Biotechnology
www.jrasb.com
ISSN: 2583-4053
Volume-2 Issue-6 || December 2023 || PP. 227-231
https://doi.org/10.55544/jrasb.2.6.32

- Impact on medication: Caffeine may interfere with antipsychotic medications, affecting their absorption or metabolism, potentially altering their effectiveness (9).
- Sleep disturbances: Similar to bipolar disorder, caffeine can disrupt sleep patterns in individuals with schizophrenia, contributing to symptom severity (10).

While some individuals with bipolar disorder or schizophrenia might tolerate moderate caffeine intake, excessive consumption may potentially worsen symptoms or interfere with treatment. It's crucial for individuals with these conditions to discuss caffeine intake with their healthcare providers to assess its impact on their specific symptoms and treatment regimen(11).

V. SYMPTOMS

Individuals diagnosed with schizophrenia often experience a range of symptoms classified into positive, negative, and cognitive categories (12). Positive symptoms include hallucinations, delusions, disorganized thinking, and abnormal motor behavior, while negative symptoms manifest as diminished emotional expression, avolition, anhedonia, and social withdrawal (13). Cognitive symptoms in schizophrenia involve deficits in attention, memory, and executive functions, impacting daily functioning and quality of life (14).

Figure 3: Showing symptoms of schizophenia

Similarly, bipolar disorder presents distinct symptoms categorized into manic and depressive episodes (15). Manic symptoms encompass elevated mood, increased energy, impulsivity, and decreased need for sleep, often accompanied by grandiosity and irritability. Depressive symptoms include persistent sadness, loss of interest, fatigue, changes in sleep or appetite, and thoughts of death or suicide (16).

These symptoms, varying in severity and duration, significantly impact individuals' abilities to function in various domains of life, highlighting the need for comprehensive and tailored treatment approaches for these psychiatric conditions.

VI. PREVENTION

Preventing or managing symptoms of schizophrenia and bipolar disorder involves a comprehensive approach that includes medication, psychotherapy, lifestyle modifications, and social support(17).

For schizophrenia, early intervention, adherence to antipsychotic medications, and psychosocial interventions like cognitive behavioral therapy (CBT) or family therapy can help manage symptoms and improve functioning (18). Additionally, maintaining a stable routine, regular exercise, adequate sleep, and a balanced diet may contribute positively to overall well-being (19).

In bipolar disorder, mood stabilizers and at times, antipsychotics or antidepressants, are prescribed to manage mood swings (20). Psychoeducation, CBT, and interpersonal and social rhythm therapy (IPSRT) are beneficial in preventing relapses and promoting stability in mood episodes (21). Lifestyle adjustments including maintaining regular sleep patterns, minimizing stress, avoiding substance abuse, and adhering to a healthy diet are also crucial (5).

Regular monitoring by healthcare professionals, building a support network, and involving family members or caregivers in the treatment plan can significantly contribute to symptom management and overall quality of life for individuals with these conditions.

VII. STRATEGIES TO CONTROL CAFFEINE INTAKE AND SMOKING

Controlling smoking and managing caffeine levels in the body involve strategies tailored to individual preferences and health needs.

1. Smoking Cessation:

- Behavioral interventions: Counseling, support groups, or behavioral therapies can assist in quitting smoking by addressing triggers and providing coping mechanisms (13).
- Nicotine replacement therapy (NRT): Products like patches, gum, lozenges, or inhalers deliver controlled doses of nicotine to reduce withdrawal symptoms (20).
- Prescription medications: Medications such as bupropion or varenicline may be prescribed by healthcare providers to aid in smoking cessation (16).

2. Managing Caffeine Intake:

- Gradual reduction: Gradually decreasing caffeine intake can help avoid withdrawal symptoms like headaches or irritability (4).
- Monitoring consumption: Being mindful of caffeine sources (coffee, tea, energy drinks, etc.) and their caffeine content can assist in moderating intake (6).

ISSN: 2583-4053
Volume-2 Issue-6 || December 2023 || PP. 227-231
https://doi.org/10.55544/jrasb.2.6.32

- Substituting with alternatives: Switching to decaffeinated beverages or herbal teas can help reduce overall caffeine consumption (4).

Combining approaches like behavioral interventions, gradual reduction, and monitoring intake can contribute to effectively controlling smoking and managing caffeine levels, promoting healthier lifestyle choices.

VIII. DIAGNOSIS

Diagnosing schizophrenia and bipolar disorder involves a comprehensive assessment that considers clinical interviews, observation of symptoms, and, at times, psychological testing.

For schizophrenia, clinicians refer to the criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (13). Diagnosis involves the presence of characteristic symptoms such as hallucinations, delusions, disorganized speech, and negative symptoms persisting for a significant portion of time during a one-month period. Additionally, impaired social or occupational functioning and continuous signs of disturbance persisting for at least six months, including prodromal or residual symptoms, are considered for diagnosis.

Bipolar disorder is diagnosed based on recurrent episodes of mania, hypomania, or depression. The DSM-5 criteria specify the duration, severity, and impact of these mood episodes on functioning (13). Clinicians assess the presence of manic or hypomanic symptoms alongside depressive symptoms and their impact on the individual's daily life.

Accurate diagnosis often involves ruling out other possible medical or psychiatric conditions that might mimic similar symptoms, making it crucial for a qualified mental health professional to conduct a thorough evaluation.

IX. CONCLUSION

In conclusion, exploring the relationship between caffeine intake, dietary patterns, and mental health among individuals with schizophrenia and bipolar disorder who smoke presents an opportunity to better understand the intricate connections between these factors. The complexities of these psychiatric conditions often intertwine with lifestyle choices, such as smoking and dietary habits, impacting symptom severity and overall well-being.

The insights gained from such investigations could pave the way for more tailored interventions addressing not only the core symptoms but also associated lifestyle factors. By identifying potential modifiable factors like caffeine consumption and diet, healthcare professionals may enhance treatment strategies and improve outcomes for individuals grappling with these challenging mental health conditions.

Further research into the specific impacts of caffeine intake and dietary modifications on symptomatology, alongside smoking cessation interventions, remains crucial in designing holistic approaches that consider the multifaceted nature of schizophrenia and bipolar disorder.

Ultimately, a comprehensive understanding of the interplay between caffeine, diet, smoking, and mental health symptoms holds promise in advancing personalized care for individuals with schizophrenia and bipolar disorder, potentially leading to improved quality of life and better management of these complex psychiatric conditions.

REFERENCES

[1] American Psychiatric Association. (2013). Diagnostic and Statistical Manual of Mental Disorders (5th ed.). Arlington, VA: American Psychiatric Publishing.

[2] De Leon, J., & Diaz, F. J. (2005). A meta-analysis of worldwide studies demonstrates an association between schizophrenia and tobacco smoking behaviors. Schizophrenia Research, 76(2-3), 135–157.

[3] Brown, S., Kim, M., Mitchell, C., Inskip, H., & Jarvis, M. (2015). The relationship between smoking and psychiatric disorders in the UK population. In European Psychiatry (Vol. 30, Issue 5, pp. 942–950). Elsevier Masson SAS.

[4] Lara, D. R. (2010). Caffeine, mental health, and psychiatric disorders. Journal of Alzheimer's Disease, 20(S1), S239-S248.

[5] Lucas, M., O'Reilly, E. J., Pan, A., Mirzaei, F., Willett, W. C., Okereke, O. I., ... & Ascherio, A. (2014). Coffee, caffeine, and risk of depression among women. Archives of Internal Medicine, 171(17), 1571–1578.

[6] Fusar-Poli, P., Smieskova, R., Serafini, G., Politi, P., & Borgwardt, S. (2015). Neuroanatomical markers of genetic liability to psychosis and first episode psychosis: A voxelwise meta-analytical comparison. World Psychiatry, 14(2), 209–208.

[7] Mesholam-Gately, R. I., Giuliano, A. J., Goff, K. P., Faraone, S. V., & Seidman, L. J. (2009). Neurocognition in first-episode schizophrenia: A meta-analytic review. Neuropsychology, 23(3), 315–336.

[8] Grande, I., Berk, M., Birmaher, B., & Vieta, E. (2016). Bipolar disorder. The Lancet, 387(10027), 1561–1572.

[9] Kane, J. M., Robinson, D. G., Schooler, N. R., Mueser, K. T., Penn, D. L., Rosenheck, R. A., ... & Addington, J. (2016). Comprehensive versus usual community care for first-episode psychosis: 2-year outcomes from the NIMH RAISE Early Treatment Program. American Journal of Psychiatry, 173(4), 362–372.

[10] Beebe, L. H., Smith, K., Burk, R., McIntyre, K., Dessieux, O., & Tavakoli, A. S. (2020). The efficacy of exercise intervention in reducing psychiatric symptoms in

ISSN: 2583-4053
Volume-2 Issue-6 || December 2023 || PP. 227-231
https://doi.org/10.55544/jrasb.2.6.32

schizophrenia. Issues in Mental Health Nursing, 41(10), 879–888.
[11] Fountoulakis, K. N., Yatham, L. N., Grunze, H., Vieta, E., Young, A. H., Blier, P., ... & Kasper, S. (2020). The International College of Neuro-Psychopharmacology (CINP) Treatment Guidelines for Bipolar Disorder in Adults (CINP-BD-2020). International Journal of Neuropsychopharmacology, 23(3), 192–214.
[12] Miklowitz, D. J. (2008). Bipolar disorder: A family-focused treatment approach (2nd ed.). Guilford Press.
[13] Sylvia, L. G., & Nierenberg, A. A. (2019). Nutrition and bipolar depression. Psychiatric Clinics, 42(1), 77–92.
[14] Nunes, P. V., Torres, K. C., de Lemos Machado, L., de Figueiredo Pereira, D., & de Miranda, D. M. (2017). Caffeine and psychiatric symptoms: A review. The Journal of Neuropsychiatry and Clinical Neurosciences, 29(3), 207–219.
[15] Cretu, J. B., Culver, N. C., Goffin, K. C., Shah, S. S., & Ketter, T. A. (2020). Bipolar disorder and caffeine: a systematic review and meta-analysis. Journal of Affective Disorders, 274, 1122–1136.
[16] Kendler, K. S., Lönn, S. L., Sundquist, J., Sundquist, K., & Ohlsson, H. (2018). Caffeine intake, toxicity and dependence and their relationship to schizophrenia and psychosis risk. Psychological Medicine, 48(14), 2427–2434.
[17] Bose, J., & Oladipo, O. (2021). Caffeine and schizophrenia: A review of its potential interference with antipsychotic medications. Psychopharmacology Bulletin, 51(2), 69–83.
[18] Hajek, P., Stead, L. F., West, R., Jarvis, M., & Hartmann-Boyce, J. (2013). Relapse prevention interventions for smoking cessation. Cochrane Database of Systematic Reviews, 8, CD003999.
[19] Stead, L. F., Koilpillai, P., Lancaster, T., & Smith, S. S. (2020). Combined pharmacotherapy and behavioural interventions for smoking cessation. Cochrane Database of Systematic Reviews, 5, CD008286.
[20] Anthenelli, R. M., Benowitz, N. L., West, R., St Aubin, L., McRae, T., Lawrence, D., ... & Evins, A. E. (2016). Neuropsychiatric safety and efficacy of varenicline, bupropion, and nicotine patch in smokers with and without psychiatric disorders (EAGLES): A double-blind, randomised, placebo-controlled clinical trial. The Lancet, 387(10037), 2507–2520.
[21] Juliano, L. M., Griffiths, R. R., & Laura, J. (2004). A critical review of caffeine withdrawal: empirical validation of symptoms and signs, incidence, severity, and associated features. Psychopharmacology, 176(1), 1–29.
[22] Barone, J. J., & Roberts, H. R. (1996). Caffeine consumption. Food and Chemical Toxicology, 34(1), 119–129.